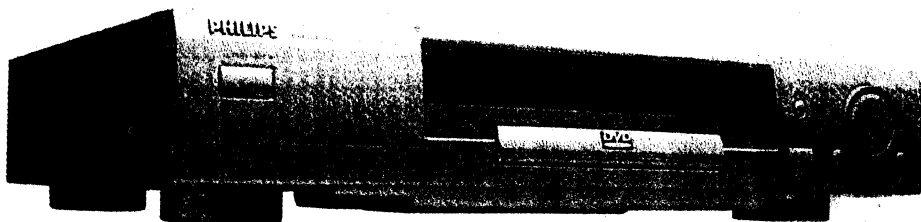


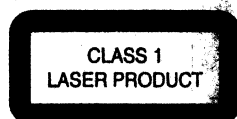
Service  
Service  
**Service**

DVD712 /001/021/051  
DVD722 /001/021/051



CL 16532007\_071.apr  
140201

# Service Manual



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# PHILIPS

# 1. Technical specifications

## Specification

English

### PLAYBACK SYSTEM

DVD Video  
Video CD & SVCD  
CD (CD-R and CD-RW)  
DVD+RW  
MP3

### OPTICAL READOUT SYSTEM

Laser type	Semiconductor AlGaAs
Numerical Aperture	0.60 (DVD) 0.45 (VCD/CD)
Wavelength	650 nm (DVD) 780 nm (VCD/CD)

### DVD DISC FORMAT

Medium	Optical Disc	
Diameter	12cm (8cm)	
Playing time (12cm)	One layer	2.15 h*
	Dual layer	4 h*
	Two side	4.30 h*
	Single layer	
	Two side	8 h*
	Dual layer	

### VIDEO FORMAT

DA Converter	10 bits
Signal handling	Components
Digital Compression	MPEG2 for DVD, MPEG1 for VCD

### TV STANDARD (PAL/50Hz) (NTSC/60Hz)

Number of lines	625	525
Playback	Multistandard	(PAL/NTSC)

### DVD

Horiz. Resolution	720 pixels	720 pixels
Vertical Resolution	576 lines	480 lines

### VCD

Horiz. Resolution	352 pixels	352 pixels
Vertical Resolution	288 lines	240 lines

### VIDEO PERFORMANCE

Video output	1 Vpp into 75 ohm
S-Video output	Y: 1 Vpp into 75 ohm C: 0.3 Vpp into 75 ohm
RGB (SCART) output	0.7 Vpp into 75 ohm
Black Level Shift	On/Off
Video Shift	Left/Right

### AUDIO FORMAT

Digital	MPEG	Compressed Digital
	DTS/Dolby Digital	16, 20, 24 bits
	PCM	fs 44.1, 48, 96 kHz

Analog Sound Stereo  
Dolby Pro Logic downmix from Dolby Digital multi-channel sound  
3D Sound (TruSurround) for virtual 5.1 channel sound on 2 speakers

### AUDIO PERFORMANCE

DA Converter	24 bits
DVD	fs 96 kHz fs 48 kHz fs 44.1 kHz fs 44.1 kHz
Video CD	fs 44.1 kHz
CD	fs 44.1 kHz
Signal-Noise (1kHz)	100 dB
Dynamic Range (1kHz)	97 dB
Crosstalk (1kHz)	110 dB
Distortion and Noise (1kHz)	88 dB
MPEG MP3	MPEG Audio L3

### CONNECTIONS

SCART	Euroconnector
S-Video Output	Mini DIN, 4 pins
Video Output	Cinch (yellow)
Audio L+R output	Cinch (white/red)
Subwoofer output	Cinch (black)
Digital Output	1 coaxial, 1 optical IEC958 for CDDA / LPCM IEC1937 for MPEG1/2, Dolby Digital and DTS

### CABINET

Dimensions (w x h x d)	435 x 92 x 320 mm
Weight	Approx. 4 Kg

### GENERAL FUNCTIONALITY

Stop / Play / Pause  
Fast Forward / Backward  
Time Search  
Step Forward / Backward  
Slow Motion  
Title / Chapter / Track Select  
Skip Next / Previous  
Repeat (Chapter / Title / All) or (Track / All)  
A-B Repeat  
Shuffle  
Scan  
New enhanced user graphical interface  
Perfect Still with digital multi-tap filter  
Zoom (x1.33, x2, x4) with picture enhancement  
Smart Picture for convenient personal colour setting  
NTSC/PAL Conversion  
Screen Saver (Dim 75% after 15 min.)  
3D Sound (TruSurround)  
Virtual Jog Shuttle  
Audio and video bit rate indicator

### DVD FUNCTIONALITY

Multi-angle Selection  
Audio Selection (1 out of max. 8 languages)  
Subtitles Selection (1 out of max. 32 languages)  
Aspect Ratio conversion (16:9, 4:3 Letterbox, 4:3 Pan Scan)  
Parental Control and Child Lock  
Disc Menu support (Title Menu and Root Menu)  
Resume (5 discs) after stop / standby  
Programming Titles/chapters with Favourite Selection

### VIDEO CD FUNCTIONALITY

Playback Control for VCD 2.0 discs  
Child Lock  
Resume (5 discs) after stop / standby  
Programming Tracks with Favourite Selection

### AUDIO CD FUNCTIONALITY

Time Display (Total / Track / Remaining Track Time)  
Full audio functionality with remote control  
Programming with Favourite Track Selection

### MP3 FUNCTIONALITY

Time Display (Track)  
Album and Track Selection  
Repeat (Disc / Album / Track)

\* typical playing time for movie with 2 spoken languages and 3 subtitle languages.

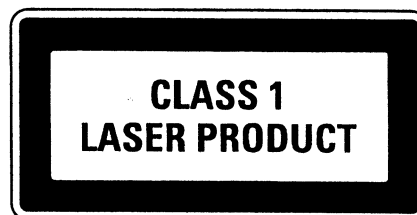
Specifications subject to change without prior notice

## LASER SAFETY

This unit employs a laser. Only a qualified service person should remove the cover or attempt to service this device, due to possible eye injury.

### LASER DEVICE UNIT

Type:	Semiconductor laser GaAlAs
Wave length:	650 nm (DVD) 780 nm (VCD/CD)
Output Power:	7 mW (DVD) 10 mW (VCD/CD)
Beam divergence:	60 degree



**USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURE OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.**

### AVOID DIRECT EXPOSURE TO BEAM

### WARNING

The use of optical instruments with this product will increase eye hazard.  
Repair handling should take place as much as possible with a disc loaded inside the player

### WARNING LOCATION: INSIDE ON LASER COVERSIELD

CAUTION VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN AVOID EXPOSURE TO BEAM  
ADVARSEL SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING UNDGÅ UDSÆTTELSE FOR STRÅLING  
ADVARSEL SYNLIG OG USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES UNNGÅ EKSPONERING FOR STRÅLEN  
WARNING SYNLIG OCH OSYNLIG LASERSTRÅLNING NÅR DENNA DEL ÄR ÖPPNAD BETRakta EJ STRÅLEN  
VARO! AVATT AESSA OLET ALTTIINA NÄKYVÄLLE JA NÄKYMÄTT ÖMÄLLE LASER SÄTEILYLLE. ÄLÄ KAT SO SÄTEESEEN  
VORSICHT SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG WENN ABDECKUNG GEÖFFNET NICHT DEM STRAHL AUSSETZEN  
DANGER VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN AVOID DIRECT EXPOSURE TO BEAM  
ATTENTION RAYONNEMENT LASER VISIBLE ET INVISIBLE EN CAS D'OUVERTURE EXPOSITION DANGEREUSE AU FAISCEAU

## Warning for powersupply on position 1005

**The primary side of the powersupply including the heatsink carries live mains voltage when the player is connected to the mains even when the player is switched off !**

This primary area is not shielded so it is possible to touch copper tracks and/or components when servicing the player. Service personnel have to take precautions to prevent touching this area or components in this area .

The primary side of the powersupply has been indicated with a lightning stroke and a stripe-marked printed on the printed wiring board

## 2. Warnings and Laser safety instructions

### (GB) WARNING

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.  
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.  
Keep components and tools also at this potential.

### ESD



### (NL) WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor elektrostatische ontladingen (ESD).  
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen.  
Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.  
Houd componenten en hulpmiddelen ook op hetzelfde potentiaal.

### (F) ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).  
Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.  
Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité.  
Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

### (D) WARNUNG

Alle IC und viele andere Halbleiter sind empfindlich gegen elektrostatische Entladungen (ESD).  
Unsorgfältige Behandlung bei der Reparatur kann die Lebensdauer drastisch vermindern.  
Sorgen sie dafür, das Sie im Reparaturfall über ein Pulsarmband mit Widerstand mit dem Massepotential des Gerätes verbunden sind.  
Halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.

### (I) AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).  
La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione.  
Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.  
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

### (GB)

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

### (NL)

Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt terug gebracht en dat onderdelen, identiek aan de gespecificeerde worden toegepast.

### (D)

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten.  
Der Originalzustand des Gerats darf nicht verändert werden.  
Für Reparaturen sind Original-Ersatzteile zu verwenden.

### (I)

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati pezzi di ricambio identici a quelli specificati.

### (F)

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.

### SHOCK, FIRE HAZARD SERVICE TEST:

**CAUTION:** After servicing this appliance and prior to returning to customer, measure the resistance between either primary AC cord connector pins (with unit NOT connected to AC mains and its Power switch ON), and the face or Front Panel of product and controls and chassis bottom,  
Any resistance measurement less than 1 Megohms should cause unit to be repaired or corrected before AC power is applied, and verified before return to user/customer.  
Ref.UL Standard NO.1492.

### NOTE ON SAFETY:

Symbol **▲** : Fire or electrical shock hazard. Only original parts should be used to replace any part with symbol **▲**  
Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.



## 2.1 Notes

### 2.1.1 DVD-Module

For repair of the DVD-module SD3, the service manual 3122 785 11010 has to be used.

### 2.1.2 ComPair

For assistance with the repair process of the monoboard an electronic Fault finding guidance has been developed , this program is called COMPAIR.

This ComPair program is available on CDROM.

The Version of the CDROM for repair of the monoboard is V1.3 or higher and can be ordered with codenumber : 4822 727 21637.

This is an update CDROM , so when the ComPair CDROM is used for the first time , one has to install the ComPair ENGINE CDROM V1.2 first.

The V1.2 CDROM can be ordered with codenumber 4822 727 634 and has to be registered after installation , the procedure for registration is explained in the help file of the program and in the booklet from the CDROM.

The cable to connect the monoboard with a PC can be ordered with codenumber 3122 785 90017.

All the hardware and software requirements of the systems necessary for working with COMPAIR is described on the CDROM.

### 3. Directions For Use

## General Information

The region code for this set is 2.



Since it is usual for DVD movies to be released at different times in different regions of the world, all players have region codes and discs can have an optional region code. If you load a disc of a different region code to your player, you will see the region code notice on the screen. The disc will not playback and should be unloaded.

**NOTE:**  
PICTURES SHOWN MAYBE DIFFERENT  
BETWEEN COUNTRIES.

**NEVER MAKE OR CHANGE CONNECTIONS  
WITH THE POWER SWITCHED ON.**

**CAUTION**  
(WARNING LOCATION: ON THE BACKPLATE  
OF SET)

Manufactured under license from Digital Theater Systems, Inc. US Pat. No. 5,451,942 and other world-wide patents issued and pending. "DTS" and "DTS DIGITAL SURROUND" are trademarks of Digital Theater Systems, Inc. © 1996 Digital Theater Systems, Inc. All rights reserved.

**CE** The DVD VIDEO player is in conformity  
with the EMC directive and low-voltage  
directive.

TruSurround and the SRS symbol are trademarks of SRS Labs, Inc. TruSurround technology is manufactured under license from SRS Labs, Inc.

**TruSurround™**  
by **SRS** (●)

For Customer Use:

Read carefully the information located at the bottom of your DVD VIDEO player and enter below the Serial No. Retain this information for future reference.

Model No. DVD VIDEO  
Serial No. \_\_\_\_\_

## Laser safety

This unit employs a laser. Due to possible eye injury, only a qualified service person should remove the cover or attempt to service this device.

**USE OF CONTROLS OR ADJUSTMENTS OR  
PERFORMANCE OF PROCEDURES OTHER  
THAN THOSE SPECIFIED HEREIN MAY  
RESULT IN HAZARDOUS RADIATION  
EXPOSURE.**

LASER	
Type	Semiconductor laser GaAlAs
Wave length	650 nm (DVD) 780 nm (VCD/CD)
Output Power	7 mW (DVD) 10 mW (VCD/CD)
Beam divergence	60 degree

**CAUTION**  
VISIBLE AND INVISIBLE LASER RADIATION WHEN  
OPEN AVOID EXPOSURE TO BEAM  
**ADVARSEL**  
SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING  
UNDGÅ UDSÆTTELSE FOR STRÅLING  
**VARNING**  
SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR  
DENNA DEL ÄR ÖPPNAD BETRÄKTA EJ STRÅLEN  
**VARO!**  
AVATTAESSA OLET ALTTIINA NÄKYVÄLLE JA  
NÄKYMÄTTÖMÄLLE LASER SÄTEILYLLE. ÄLÄ KATSO  
SÄTEESEEN  
**VORSICHT**  
SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG  
WENN ABDECKUNG GEÖFFNET NICHT DEM  
STRAHL AUSSETZEN  
**ATTENTION**  
RAYONNEMENT LASER VISIBLE ET INVISIBLE EN CAS  
D'OUVERTURE EXPOSITION DANGEREUSE AU  
FAISCEAU

## Introduction

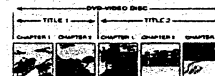
English

### Philips DVD Video Introduction

Your Philips DVD Video player will playback digital video discs conforming to the universal DVD Video standard. The unique features of DVD Video, such as selection of sound track, subtitle languages and different camera angles (disc dependent), are all supported. In addition to DVD Video discs, you will be able to playback all Video CDs, SVCDs and Audio CDs.

#### DVD Video

You will recognise DVD Video discs by the logo shown. Depending on the material on the disc (a movie, video clips, a drama series, etc.) the disc may have one or more Titles.



#### Video CD

You will recognise Video CDs by the logo shown.



#### Super Video CD (SVCD)

SVCDs are based on the Super VCD IO Standard, referring to the Standard of Electronics Industry of the People's Republic of China.

#### Audio CD

Audio CDs contain music tracks only. You will recognise Audio CDs by their logo shown.



#### MP3 (MPEG Audio Layer-3)

This player supports the MP3 format which contains compressed music tracks.

**Note:**

– Only the first session of multisession discs is supported.

## Unpacking

First check and identify the contents of your DVD Video player package.

You should have the following items.

- DVD Video player
- Remote Control with batteries
- Audio cable
- SCART cable
- Instructions for use

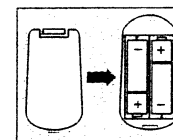
If any item is damaged or missing, contact your retailer or Philips.

Keep the packaging materials for future transportation.

### Remote Control Battery Installation

- Insert batteries as indicated inside the battery compartment.

**Caution: Do not mix old and new batteries. Never mix different types of batteries (standard, alkaline, etc.)**



### Environmental Information

- Your system consists of materials which can be recycled and reused if disassembled by a specialized company. Please observe the local regulations regarding the disposal of packaging materials, exhausted batteries and old equipment.

### Safety Information

- Do not expose the system to excessive moisture, rain, sand or heat sources.
- Place the player on a firm, flat surface.
- Keep the player away from domestic heating equipment and direct sunlight.
- In a cabinet, allow about 2.5 cm (1 inch) of free space all around the player for adequate ventilation.
- If the DVD Video player cannot read CDs/DVDs correctly, use a commonly available cleaning CD/DVD to clean the lens before taking the DVD Video player to be repaired. Other cleaning methods may destroy the lens. Always keep the tray closed to avoid dust on the lens.
- The lens may cloud over when the DVD Video player is suddenly moved from cold to warm surroundings. Playing a CD/DVD is not possible then. Leave the power on for about one hour with no disc in the unit until normal playback is possible.

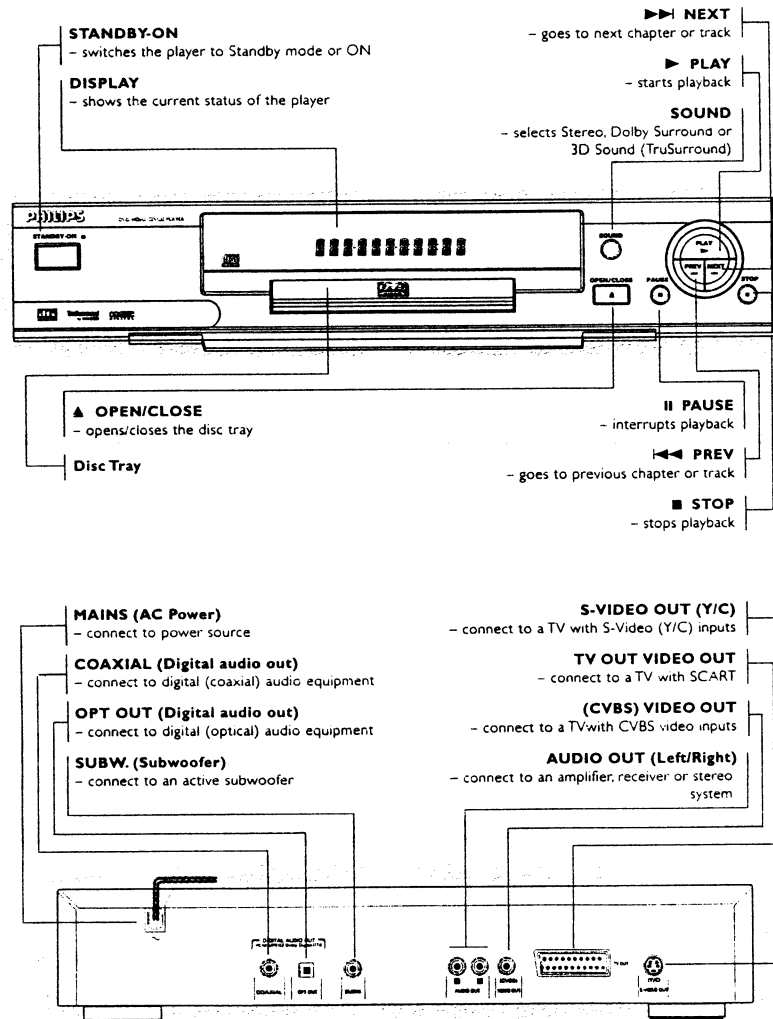
### Cleaning Discs

- When a disc becomes dirty, clean it with a cleaning cloth. Wipe the disc from the centre out, in a straight line.
- Do not use solvents such as benzene, thinner, commercially available cleaners, or anti-static spray intended for analog discs.



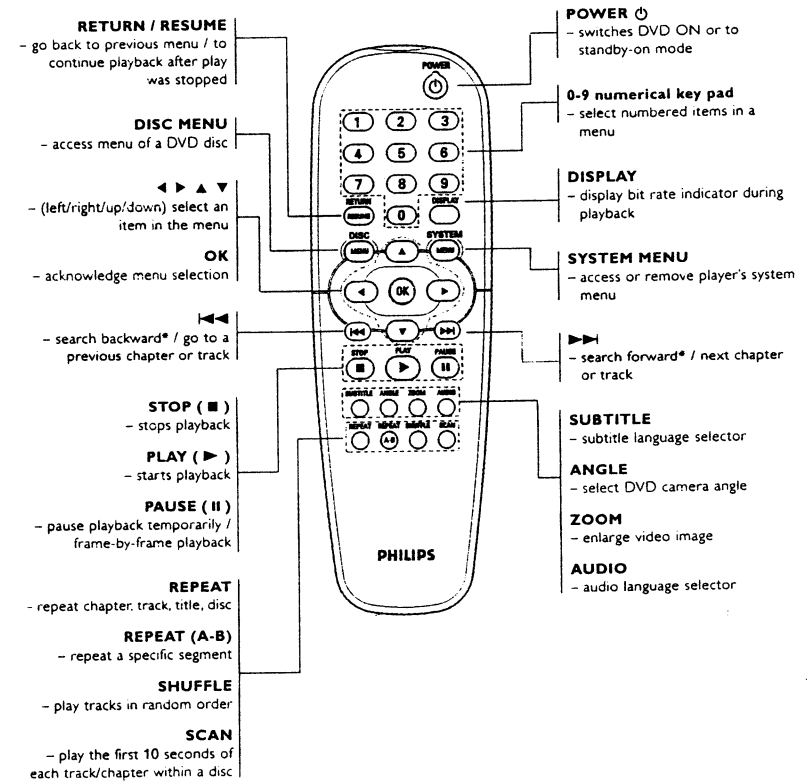
## Functional Overview

### Front and Rear Panels



Caution: Do not touch the inner pins of the jacks on the rear panel connectors. Electrostatic discharge may cause permanent damage to the unit.

### Remote Control



\* Press key for about 2 seconds

Preparation

General Notes

- Depending on your TV and other equipment you wish to connect, there are various ways you could connect the player. Use only one of the connections described below.
- Please refer to the manuals of your TV, VCR, Stereo System or other devices as necessary to make the best connections.
- For better sound reproduction, connect the player's audio out jacks to the audio in jacks of your amplifier, receiver, stereo or A/V equipment. See 'Connecting to Optional Equipment'.

Caution:

- Make sure the DVD player is connected directly to the TV. Set the TV to the correct video input channel.
- Do not connect the player's audio out jack to the phono in jack of your audio system.
- Do not connect your DVD player via your VCR. The DVD image could be distorted by the copy protection system.

Connecting to a TV

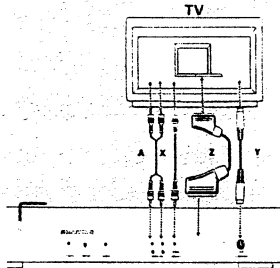
- Make one of the following connections, depending on the capabilities of your existing equipment.
  - 1 Connect the SCART to the corresponding connector on the TV using the SCART cable supplied (Z).
- If your TV is not equipped with a SCART you can select one of the following alternative connections:

S-Video (Y/C) connection

- 1 Connect the Y/C S-VIDEO OUT jack on the DVD player to the S-Video in jack on the TV using an optional S-Video cable (Y).
- 2 Connect the Left and Right AUDIO OUT jacks of the DVD player to the audio left/right in jacks on the TV (A).

CVBS connection

- 1 Connect the (CVBS) VIDEO OUT jack on the DVD player to the video in jack on the TV using the video cable supplied (X).
- 2 Connect the Left and Right AUDIO OUT jacks of the DVD player to the audio left/right in jacks on the TV (A).



Connecting to Optional Equipment

Connecting to an amplifier equipped with two channel analog stereo or Dolby Surround

- 1 Connect the Left and Right AUDIO OUT jacks of the DVD player to the audio left and right in jacks on your amplifier, receiver or stereo system, using the supplied audio cable (A).

Connecting to an amplifier equipped with two channel digital stereo (PCM) or to an A/V receiver equipped with a multi-channel decoder (Dolby Digital™, MPEG 2 and DTS)

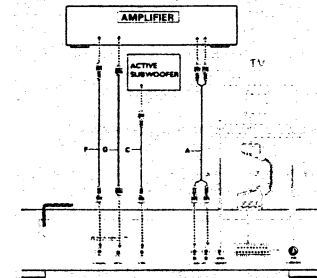
- 1 Connect the player's digital audio out jack (optical G or coaxial F) to the corresponding in jack on your amplifier. Use an optional digital (optical G or coaxial F) audio cable.
- 2 You will need to activate the player's digital output (see 'Personal Preferences').

Digital Multi-channel sound

Digital multi-channel connection provides the best sound quality. For this you need a multi-channel A/V receiver that supports one or more of the audio formats supported by your DVD player (MPEG 2, Dolby Digital™ and DTS). Check the receiver manual and the logos on the front of the receiver.

Connecting to an active subwoofer

- 1 Connect the active subwoofer to the SUBWOOFER OUT audio out jack (C). The subwoofer reproduces just the low bass sound effect (e.g. explosions, the rumble of spaceships, etc.). Be sure to follow the instructions supplied with the subwoofer.



Note:

- If the audio format of the digital output does not match the capabilities of your receiver, the receiver will produce a strong, distorted sound or no sound at all.
- Six Channel Digital Surround Sound via digital connection can only be obtained if your receiver is equipped with a Digital Multi-channel decoder.
- To see the selected audio format of the current DVD in the Status Window, press SYSTEM MENU.

NTSC/PAL Settings

You can switch the NTSC/PAL setting of the DVD player to match the video signal of your TV. This setting only affects the television's on-screen display that shows the stop and setup modes. You may select either NTSC or PAL. To change the DVD player setting to PAL or NTSC, follow the steps below.

- 1 Unplug the DVD player from the mains.
- 2 Press and hold ■ and ►►I on the front of the DVD player. While holding ■ and ►►I, plug in the mains.
- 3 After PAL or NTSC appears on the display of the DVD player, release ■ and ►►I at the same time. The PAL or NTSC indicator that appears on the display indicates the current setting.
- 4 To change the setting, press ►►I within three seconds. The new setting (PAL or NTSC) will appear on the display.

NTSC/PAL Conversion

This player is equipped with a NTSC/PAL conversion feature to convert the video output of the disc to match your TV system. The conversions supported are as below:

Disc Type	Format	Output format selected in menu		
		NTSC	PAL	AUTO
DVD	NTSC	NTSC	PAL	NTSC
	PAL	Not supported	PAL	PAL
VCD	NTSC	NTSC	PAL	NTSC
	PAL	NTSC	PAL	PAL

- 1 In the Preference Menu, select TV System.
- 2 Press ▲ or ▼ to select PAL, NTSC or AUTO.

Notes:

- AUTO can only be selected when using a TV that has both the NTSC and PAL systems.
- This is applicable for CVBS output on cinch and SCART only.
- Slight picture distortions may occur due to this conversion. This is normal. Thus, the AUTO format is most suitable for the best picture quality.

General Explanation

About this manual

This manual gives the basic instructions for operating the DVD player. Some DVDs require specific operation or allow only limited operation during playback which may not respond to all operating commands. When this occurs, the symbol X appears on the TV screen, indicating that the operation is not permitted by the player or the disc.

Remote control operation

- Unless stated, all operations can be carried out with the remote control. Always point the remote control directly at the player, making sure there are no obstructions in the path of the infrared beam. Corresponding keys on the front panel of the player can also be used.

Menu bar operation

- A number of operations can be carried out via the menu bar on the screen. The menu bar can be accessed by pressing the cursor keys on the remote control.
- Pressing SYSTEM MENU while the menu bar is displayed will clear the menu bar from the screen.
- The selected item will be highlighted and the appropriate cursor keys to operate will be displayed below the icon.
- The symbols < or > indicate more items are available at the left/right of the menu bar. Press ◀ or ▶ to select these items.

## Initial Setup (Virgin Mode)

### General

In 'Initial Setup' you may have to set your preferences for some of the player's features. *(not applicable for all models)*

### Operation

After switching on the player for the very first time, the 'Initial Setup Screen' will appear.  
The menu for the first item to be set is displayed and the first option is highlighted.

- Use the  $\nabla$   $\blacktriangle$  keys to go through the options in the menu. The icon of the selected option will be highlighted.
- Use OK to confirm your selection and to go to the next menu.

#### Note:

- Preferences have to be set in the order of which the item menus will appear on the screen.
- The 'Initial Setup' screen will only disappear after the settings for the last item have been confirmed.
- If any keys other than  $\nabla$   $\blacktriangle$  or OK are pressed,  $\times$  will appear on the screen.
- If the player is switched off while setting personal preferences, all preferences have to be set again after switching the player on again.

The following items may have to be set in Initial Setup:

#### Menu language

You can choose from different languages. The On Screen Menus will be displayed in the language available on the player.

#### Audio language

You can choose from different languages. If available on the disc, the player will play the audio in the selected language. If the selected language is not available, speech will revert to the first spoken language on the disc.

#### Subtitle language

You can choose from different subtitle languages. If available on the disc, subtitles will be in the language chosen. If the selected language is not available, subtitles will revert to the first subtitle language on the disc.

### TV Shape

If you have a wide screen (16:9) TV, select 16:9.  
If you have a regular (4:3) TV, select 4:3.  
If you have a 4:3 TV, you can also select between: Letterbox for a 'wide-screen' picture with black bars top and bottom, or Pan Scan, for a full-height picture with the sides trimmed. If a disc supports the format, the picture will be shown accordingly.

### Country

Select your country. This is used as input for the 'Parental Control' feature (see 'Access Control').

#### Note:

- All these items may have to be set during 'Initial Setup'. After that, they can always be changed in the Personal Preferences Menu.

## Menu Bar/Status Window

As there are multiple menu-bars, the items on the menu-bar are arranged according to usage, availability of direct access keys. Pressing the SYSTEM MENU keys once will toggle through menu-bar-1, menu-bar-2, menu-bar-3 and OFF.

#### Menu-bar-1

- Personal Preferences
- Subtitle Language
- Audio Language
- Colour
- Sound

#### Menu-bar-2

- Step
- Slow motion
- Fast motion
- Angle
- Zoom

#### Menu-bar-3

- Title
- Chapter
- Time Search
- Favourite Track Selection (FTS)

## Temporary Feedback Field Icons

- Scan
- Repeat All
- Repeat Title
- Repeat Track
- Repeat Chapter
- Shuffle
- Shuffle Repeat
- Repeat A to end
- Repeat A-B
- Angle
- Child Lock On
- Child Safe
- Resume
- Action prohibited

## Personal Preferences

You can set your own personal preferences on the player.

### General operation:

- Press SYSTEM MENU on the remote control.
- Select in the menu bar.  
→ The Personal Preferences menu appears.
- Use the  $\blacktriangle$   $\blacktriangleright$   $\blacktriangleleft$   $\nabla$  keys to toggle through the menus, submenus and submenu options.  
→ When a menu item is selected, the cursor keys (on the remote control) to operate the item are displayed next to the item.
- Press OK to confirm and return to the main menu.  
The following items can be adapted:

### Picture

#### – TV Shape

See 'Initial Setup'

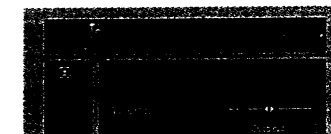
#### – Black level shift (NTSC only)

Select ON for adapting the colour dynamics to obtain richer contrasts.



#### – Video shift

The factory centres the video on your screen. Use this setting to personalize the position of the picture on your TV by scrolling it to the left or right.



#### – Colour settings

You can select one of five predefined sets of colour settings and one set (Personal) which you can define yourself.



#### – Personal colour

Allows you to fine-tune the selected colour settings saturation, brightness and contrast.

## Sound

### – Digital output

Factory setting: ALL. This means coaxial output is on. If you are not connecting to equipment with a digital input, change the setting to OFF.

If your equipment doesn't include a digital multi-channel decoder, set the digital output to PCM (Pulse Code Modulation).



### – Analog output

Select Stereo, Dolby Surround or 3D Sound (TruSurround) to match your system's playback capability.



### – Subwoofer cut-off

The frequency of the subwoofer output can be set to HIGH (200Hz) or LOW (100Hz) to match your system's playback sound quality.

### – Night Mode

Optimizes the dynamics of the sound for low volume playback.

### – Karaoke vocal

Put this setting to ON only when a multi-channel karaoke DVD is being played. The karaoke channels on the disc will then be mixed into a normal stereo sound.

## Language

Select the required Menu, Audio and Subtitle language. See 'Initial Setup'.

Audio language and Subtitle language can also be adapted via the Menu bar on the screen.

## Features

### – Access Control

Access Control contains the following features:  
Child Lock - When Child Lock is set to ON, a 4-digit code needs to be entered in order to playback discs.  
Parental control - Allows the conditional presentation of DVDs containing Parental Control information (see 'Access Control').

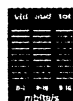
### – Status Window

Displays the current status of the player and appears with the menu bar. When disc playback is stopped, it is displayed with the 'Temporary Feedback Field' in the default screen. See 'On-Screen Display' information.  
Factory setting is ON. Select OFF to suppress display of the Status Window.



### – Bit Rate Indicator

When activated, the bit rate for video and audio, as well as the total bit rate is displayed. This is only applicable during playback of DVD and SVCD discs.



### – Help text

When set to ON, help text describes the icons selected. Select OFF if you no longer require the help text.

## Operation

### Loading Discs

- 1 Press OPEN/CLOSE on the front of the player to open disc tray.
- 2 Load your chosen disc in the tray, label side up.
- 3 Press OPEN/CLOSE again, to close the tray.  
→ REPEAT appears in the status window and on the player display; and playback starts automatically.

#### Note:

– If 'Child Lock' is set to ON and the disc inserted is not authorised, the 4-digit code must be entered and/or the disc must be authorised (see 'Access Control').

### Playing a DVD Video and Video CD disc

#### Playing a disc

- After inserting the disc and closing the tray, playback starts automatically, and the status window of the player display shows the type of disc loaded, as well as disc's information and playing time.
- The disc may invite you to select an item from a menu. If the selections are numbered, press the appropriate numerical key; if not, use the ▲/▼, ◀▶ keys to highlight your selection, then press OK.
- The currently playing title and chapter number are displayed.
- Playback may stop at the end of the Title, and then may return to the DVD menu. To go on to the next title, press ▶.
- To stop playback, press ■.
- → The default screen will appear, giving information about the current status.
- You can resume playback from the point at which you stopped playback. Press ▶; when you see the Resume icon ▶ on the screen, press ▶ again.
- → The RESUME feature applies not only to the disc in the player, but also to the last four discs you have played. Simply reload the disc and press RESUME on the remote control. Or, press ▶ when you see the Resume icon ▶ on the screen, then press ▶ again.

#### Note:

– DVDs may have a region code. Your player will not play discs that have a region code different from the region code of your player.

## General Features

#### Note:

– Unless stated, all operations described are based on remote control operation. A number of operations can also be carried out via the menu bar on the screen.

### Moving to another title/ chapter

When a disc has more than one title or chapter, you can move to another title/ chapter as follows:

- Press **SYSTEM MENU**, then select ■ or ■ in the menu bar.
- Press ▲ or ▼ to select a title/chapter.



### Slow Motion

- Select ■ (SLOW MOTION) in the menu bar.
- Use the ▼ keys to enter the SLOW MOTION menu.  
→ Playback will pause.
- Use the cursor keys ◀▶ to select the required speed: -1, -1/2, -1/4 or -1/8 (backward), or +1/8, +1/4, +1/2 or +1 (forward).
- Select 1 to play the disc at normal speed again.
- If II is pressed, the speed will be set to zero (PAUSE).
- To exit slow motion mode, press ▶ and ▲.

### Still Picture and Frame-by-frame playback

- Select ■ (STEP) in the menu bar.
  - Use the ▼ key to enter the step by step menu.  
→ Playback will pause.
  - Use the cursor keys ◀▶ to select the previous or next picture frame.
  - To exit step by step playback, press ▶ or ▲.
- You can also step forward by pressing II repeatedly on the remote control.



### Scan

Scanning plays the first 10 seconds of each chapter/track on the disc.

- Press **SCAN**.
- To continue playback at your chosen chapter/track, press **SCAN** again or press ▶.



### Search

- Select ■ (FAST MOTION) in the menu bar.
  - Use the ▼ keys to enter the FAST MOTION menu.
  - Use the ◀▶ keys to select the required speed: -32, -8 or -4 (backward), or +4, +8, +32 (forward).
  - Select 1 to play the disc at normal speed again.
  - To exit FAST MOTION mode, press ▶ or ▲.
- To search forward or backward through different speeds, you can also hold down I◀◀◀ or ▶▶▶.



## Repeat

### DVD Video Discs

#### Repeat chapter/title/disc

- To repeat the current chapter, press REPEAT.
- REPEAT CHPT appears on the player display.
- To repeat the current title, press REPEAT a second time.
- REPEAT TITL appears on the display.
- To repeat the entire disc, press REPEAT a third time.
- REPEAT appears on the display.
- To exit Repeat mode, press REPEAT a fourth time.

### Video CDs

#### Repeat track/disc

- To repeat the current track, press REPEAT.
- REPEAT TRK appears on the player display.
- To repeat the entire disc, press REPEAT a second time.
- REPEAT appears on the display and the TV screen.
- To exit Repeat mode, press REPEAT a third time.

## Repeat A-B

- To repeat a specific portion of a title:
- Press REPEAT A-B at your chosen starting point.
- A- appears briefly on the screen.
- Press REPEAT A-B again at your chosen end point.
- REPEAT A-B appears briefly on the display, and the repeat sequence begins. (REPEAT A-B is displayed on the front panel of the player)
- To cancel the sequence and continue playback, press REPEAT A-B.

## Shuffle

### DVD Video discs

This shuffles the playing order of chapters within a title, if the title has more than one chapter.


- Press SHUFFLE during playback.
- SHUFFLE appears on the TV screen for about two seconds.
- To return to normal playback, press SHUFFLE again.

### Video CDs

- Press SHUFFLE during playback.
- SHUFFLE appears on the TV screen for about two seconds.
- To return to normal playback, press SHUFFLE again.

## Time search


The Time Search function allows you to start playing at any chosen time on the disc.

- Select  (TIME SEARCH) in the menu bar.
- Press  $\blacktriangledown$ .
- Playback will pause.
- A time edit box appears on the screen, showing the elapsed playing time of the current disc.
- Use the numeric keys to enter the required start time. Enter hours, minutes and seconds from left to right in the box.
- Each time an item has been entered, the next item will be highlighted.
- Press OK to confirm the start time.
- The time edit box will disappear and playback starts from the selected time position on the disc.



## Zoom

The Zoom function allows you to enlarge the video image and to pan through the enlarged image.


- Select  (ZOOM).
- Press  $\blacktriangledown$  to activate the ZOOM function and select the required zoom factor: 1.33 or 2 or 4.
- Playback will pause.
- The selected zoom factor appears below the Zoom icon in the menu bar and Press OK to pan appears below the menu bar.
- The picture will change accordingly.
- Press OK to confirm the selection.
- The panning icons appear on the screen.
- Use the  $\blacktriangle$   $\blacktriangleright$   $\blacktriangleleft$   $\blacktriangledown$  keys to pan across the screen.
- When OK is pressed only the zoomed picture will be shown on the screen.
- To exit ZOOM mode:
- Press  $\blacktriangleright$  to resume playback.



## FTS-Video

- The FTS-Video function allows you to store your favourite titles and chapters (DVD) and favourite tracks and indexes (VCD) for a particular disc in the player memory.
- FTS program can contain 20 items (titles, chapters etc.).
- A programmed FTS will be placed on top of the list when playback is activated. When the list is full, a new program will replace the last program on the list.
- The programme can be selected and played at any time.

### Storing a FTS-Video Programme


- In STOP mode, select VIDEO FTS  in the menu bar.
- Press  $\blacktriangledown$  to open the menu.
- The VIDEO FTS menu appears.
- Press  $\blacktriangleright$  or  $\blacktriangleleft$  to select ON or OFF.

### Storing titles/tracks


- Press  $\blacktriangledown$  to select TITLES.
- Use  $\blacktriangleright$  and  $\blacktriangleleft$  to select the required title.
- Press OK if you wish to store the entire title.
- The title number will be added to the list of selections.




### Storing chapters/indexes

- Press  $\blacktriangledown$  on the selected title number.
- The title number will be marked and the highlight moves to the first available chapter number for this title.
- Use  $\blacktriangleright$  and  $\blacktriangleleft$  to select the required chapter number.
- Press OK to confirm the selection.
- The title/chapter selection will be added to the list of selections.
- Press SYSTEM MENU to exit the VIDEO FTS  menu.

### Erasing a FTS-Video Programme

- In STOP mode, select VIDEO FTS  in the menu bar.
- Use  $\blacktriangledown$  to select PROGRAM.
- Use  $\blacktriangleright$  and  $\blacktriangleleft$  to select the required selection number.
- Press OK to erase the selection.
- Press SYSTEM MENU to exit.

### If you wish to erase all selections:

- In STOP mode, select VIDEO FTS  in the menu bar.
- Use  $\blacktriangledown$  to select CLEAR ALL.
- Press OK.
- All selections will now be erased.
- Press SYSTEM MENU to exit.

## Special DVD Features

### Checking the contents of DVD Video discs: Menus

DVDs may contain menus to navigate the disc and access special features. To use the menu, press the appropriate numerical key; or use the  $\blacktriangledown$ ,  $\blacktriangle$ ,  $\blacktriangleright$ ,  $\blacktriangleleft$  keys to highlight your selection, then press OK.

### Title/Disc menu

- Press DISC MENU.
- If the current title has a menu, the menu will appear on the screen otherwise, the disc menu will be displayed.
- The menu can list camera angles, spoken language and subtitle options, and chapters for the title.
- To remove the title menu, press DISC MENU again.


### Camera Angle

If the disc contains sequences recorded from different camera angles, the angle icon appears, showing the number of available angles and the angle being shown currently. You can then change the camera angle if you wish.

→ After a while, playback changes to the selected angle. The angle icon remains displayed until multiple angles are no longer available.




### Changing the audio language

- Select  (AUDIO) in the menu bar.
- Press  $\blacktriangleleft$  or  $\blacktriangledown$  repeatedly to see the different languages.



### Subtitles

- Select  (SUBTITLE) in the menu bar.
- Press  $\blacktriangleleft$  or  $\blacktriangledown$  repeatedly to see the different subtitles.



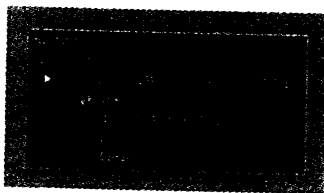
## Special VCD & SVCD Features

### Playback Control (PBC)

- Load a Video CD with PBC and press ►.
- Go through the menu with the keys indicated on the TV screen until your chosen passage starts to playback. If a **PBC** menu consists of a list of titles, you can select a title directly.
- Enter your choice with the numerical keys (0-9).
- Press RETURN to go back to the previous menu.
- You may also select **PBC OFF** under Personal Preferences.

### Playing an Audio CD

- After loading the disc, playback starts automatically.
- If the TV is on, the Audio CD screen appears.
- The number of tracks and the total playing time of the disc will be shown on the TV screen.
- During playback, the current track number and its elapsed playing time will be shown on the TV screen and on the player display.
- Playback will stop at the end of the disc.
- To stop playback at any other time, press ■.



### Pause

- Press II during playback.
- To return to playback, press ►.

### Search

- To search forward or backward through the disc at four times the normal speed, hold down ◀◀ or ▶▶ for about one second during playback.
  - Search begins, and sound is partially muted.
- To step up to eight times the normal speed, press ◀◀ or ▶▶ again.
  - Search goes to eight times the speed, and the sound is muted.
- To return to four times the normal speed, press ◀◀ or ▶▶ again.
- If the TV is on, search speed and direction are indicated on the screen each time ◀◀ or ▶▶ is pressed.
- To end the search, press ► to resume playback or press ■ to stop playback.

### Moving to another track

- Press ◀◀ or ▶▶ briefly during playback to go to the next track or to return to the beginning of the current track.
- Press ◀◀ twice briefly to step back to the previous track.
- To go directly to any track, enter the track number using the numerical keys (0-9).

### Shuffle

- Press **SHUFFLE** during playback.
  - The playing order of the tracks is changed.
- To return to normal playback, press **SHUFFLE** again.

### Repeat track/disc

- To repeat the current track, press REPEAT.
  - REPEAT TRK appears on the display.
- To repeat the entire disc, press REPEAT a second time.
  - REPEAT appears on the display.
- To exit Repeat mode, press REPEAT a third time.

### Repeat A-B

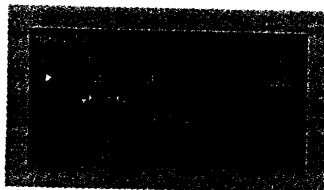
- To repeat a specific portion of a track:
  - Press REPEAT A-B at your chosen starting point.
    - A- appears on the player display.
  - Press REPEAT A-B again at your chosen end point.
    - A-B appears on the display, and the sequence begins to play repeatedly.
- To cancel the sequence and continue playback, press REPEAT A-B.

### Scan

- Scanning plays the first 10 seconds of each track on the disc.
- Press **SCAN**.
- To continue playback at your chosen track, press **SCAN** again or press ►.

## FTS Programme

- FTS Programme allows you to store your favourite tracks for a particular disc in the player memory.
- Each FTS Programme can contain 20 tracks.



English

English

### Storing an FTS Programme

- Load a disc and stop playback.
- Use ▼ to go to the list of available tracks.
- Use ► or ◀ to select tracks from the list. To go directly to any track, enter the track number using the numerical keys (0-9).
- Store each track by pressing OK.
  - The track numbers will be added to the list.
  - The number of tracks and the playing time of the program will be shown on the TV screen and the player display.

When your FTS Program is complete, press ► to start playback or press ▲ to go back to Stop mode. In either case, the FTS Program will be automatically memorized.

### Switching FTS ON/OFF

- Use ▲ ▼ to move and select desired tracks.
- Use ► and ◀ to select either ON or OFF.

### Erasing a track from an FTS Program

- Use ▼ to go to the list of selected tracks.
- Use ► and ◀ to select the track number you wish to erase.
- Press OK.
  - The track number will be erased from the list of selected tracks.

### Erasing the complete program

- Use ▼ to select **CLEAR ALL**, then press OK.
  - The complete FTS Program for the disc will be erased.

## MP3 Disc Features

### Support following MP3-CD formats (ISO9660 format):

- Max. 30 characters
- Max. nested directory is 8 levels
- The max. ALB number is 32
- Supported VBR bit-rate
- Supported sampling frequencies for MP3 disc are: 32 kHz, 44.1 kHz, 48 kHz
- Supported Bit-rates of MP3 disc are: 32, 64, 96, 128, 192, 256 (kbps)

### Following formats can't be supported

- The files like \*.WMA, \*.AAC, \*.DLF, \*.M3U, \*.PLS
- Chinese filename
- The non-session closed discs
- The discs recorded under UDF format

Downloading MP3 files from the Internet or copying songs from your own legal discs is a delicate process.

Sound Quality	Bit Rate	Approximate Reduction Rate	Approximate MP3-CD time	Comment
16-bit	128 kbps	10:1	10 min	Estimated sound quality
16-bit	128 kbps	10:1	10 min	Estimated sound quality

You may experience an occasional "skip" while listening to your MP3 files. This is normal.

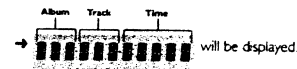
### Additional note for MP3 disc Playback:

- In compliance with the SDMI, digital-out is muted while playing MP3 discs.
- Due to the recording nature of Digital Audio MP3 (DAM), only Digital Audio music will play.
- The disc reading time may exceed 10 seconds due to the large number of songs compiled into one disc.
- Only the first session of multisession discs is supported.

### Album/Title

This feature allows you to view and select the next or previous MP3 disc Album/Title.

- Press ▲/▼ to scroll through the previous or next Album.
- Press ◀/▶ to scroll through the previous or next Track.



- You can also select the desired album/track number directly using the numeric keys on the remote control.

### Note:

- In **STOP mode**: numbers are used for **ALBUM** selection.
- In **PLAY mode**: numbers are used for **TRACK** selection.
- Only the following functions are possible for MP3 discs:
  - STOP / PLAY / PAUSE
  - SKIP NEXT / PREVIOUS
  - REPEAT (TRACK / ALBUM / DISC)

### MP3 Discs - Album/Track/Disc

- To repeat a track, press REPEAT.
  - REPEAT TRK appears on the display.
- To repeat an album, press REPEAT a second time.
  - REPEAT ALBM appears on the player display.
- To repeat the entire disc, press REPEAT a third time.
  - REPEAT DISC appears on the player display.



## Access Control

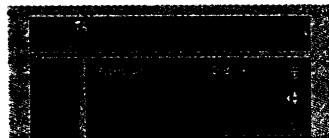
### Access Control; Child Lock (DVD Video and Video CD)

#### Activating/deactivating the child lock

- 1 When disc playback is stopped, select **ACCESS CONTROL** in the features menu using the  $\Delta/\nabla$  keys.
- 2 Enter a 4-digit code of your own choice.
- 3 Enter the code a second time.
- 4 Move to **"CHILD LOCK"** using the  $\Delta/\nabla$  keys.
- 5 Move to **LOCK/UNLOCK** using the  $\blacktriangleright$  key.
- 6 Select **LOCK** using the  $\Delta/\nabla$  keys.
- 7 Press OK or  $\blacktriangleleft$  to confirm, then press  $\blacktriangleleft$  again to exit the menu.  
→ Now unauthorized discs will not be played unless the 4-digit code is entered.
- 8 Select **UNLOCK** to deactivate the **CHILD LOCK**.

*Note: Confirmation of the 4-digit code is necessary when:*

- The code is entered for the very first time (see above).
- The code is changed (see 'Changing the 4-digit code').
- The code is cancelled (see 'Changing the 4-digit code').

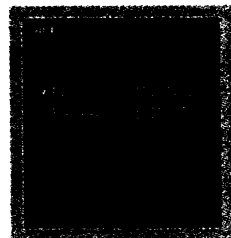


#### Authorizing discs

- Insert the disc. See 'Loading discs'.  
→ The 'child protect' dialog will appear.  
You will be asked to enter your secret code for 'Playback Once' or 'Playback Always'. If you select 'Playback Once', the disc can be played as long as it is in the player and the player is ON. If you select 'Playback Always', the disc will become child safe (authorized) and can always be played, even if the Child Lock is set to ON.

#### Notes:

- The player memory maintains a list of 120 authorized ('Child safe') disc titles. A disc will be placed in the list when 'Playback Always' is selected in the 'child protect' dialog.
- Each time a 'child safe' disc is played, it will be placed on top of the list. When the list is full and a new disc is added, the last disc in the list will be removed from the list.
- Double sided DVDs may have a different ID for each side. In order to make the disc 'child safe', each side has to be authorized.
- Multi-volume VCDs may have a different ID for each volume. In order to make the complete set 'child safe', each volume has to be authorized.

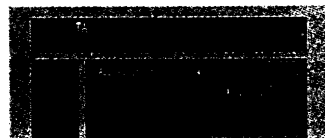


#### Deauthorizing discs

- Insert the disc. See 'Loading discs'.  
→ Playback starts automatically.
- Press  $\blacksquare$  while  $\odot$  is visible.  
→ The  $\odot$  will appear and the disc is now deauthorized.

### Access Control; Parental Control (DVD Video only)

Movies on DVDs may contain scenes not suitable for children. Therefore, disc may contain Parental Control information which applies to the complete disc or to certain scenes on the disc. These scenes are rated from 1 to 8, and alternative, more suitable scenes are available on the disc. Ratings are country dependent. The 'Parental Control' feature allows you to prevent discs from being played by your children or to have certain discs played with alternative scenes.



#### Activating/Deactivating Parental Control

- 1 When disc playback is stopped, select **ACCESS CONTROL** in the features menu using the  $\Delta/\nabla$  keys.
- 2 Enter your 4-digit code. If necessary, enter the code a second time.
- 3 Move to Parental Control using the  $\Delta/\nabla$  keys.
- 4 Move to **VALUE ADJUSTMENT** (1-8) using the  $\blacktriangleright$  key.
- 5 Then use the  $\Delta/\nabla$  keys or the numerical keys on the remote control to select a rating from 1 to 8 for the disc inserted.

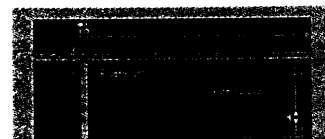
#### Rating 0 (displayed as '- - -'):

Parental Control is not activated. The Disc will be played in full.

#### Ratings 1 to 8:

The disc contains scenes not suitable for children. If you set a rating for the player, all scenes with the same rating or lower will be played. Higher rated scenes will not be played unless an alternative is available on the disc. The alternative must have the same rating or a lower one. If no suitable alternative is found, playback will stop and the 4-digit code has to be entered.

- 6 Press OK or  $\blacktriangleleft$  to confirm, then press  $\blacktriangleleft$  again to exit the menu.



#### Country

- 1 When disc playback is stopped, select **ACCESS CONTROL** in the features menu using the  $\Delta/\nabla$  keys.
- 2 Enter the 4-digit code.
- 3 Move to **CHANGE COUNTRY** using the  $\nabla$  key.
- 4 Press the  $\blacktriangleright$  key.
- 5 Select a country using  $\Delta/\nabla$ .
- 6 Press OK or  $\blacktriangleleft$  to confirm, then press  $\blacktriangleleft$  again to exit the menu.

#### Changing the 4-digit code

- 1 When disc playback is stopped, select **ACCESS CONTROL** in the features menu using the  $\Delta/\nabla$  keys.
- 2 Enter the old code.
- 3 Move to **CHANGE CODE** using the  $\nabla$  key.
- 4 Press the  $\blacktriangleright$  key.
- 5 Enter the new 4-digit code.
- 6 Enter the code a second time and reconfirm by pressing OK.
- 7 Press  $\blacktriangleleft$  to exit the menu.

#### If you forget your 4 digit code

- 1 Press  $\blacksquare$  to exit 'Child Protect' screen.
- 2 Select **ACCESS CONTROL** in the features menu using the  $\Delta/\nabla$  keys.
- 3 The 4-digit code can be cancelled by pressing  $\blacksquare$  four times in the 'Access Control' dialog.
- 4 You can then enter a new code (twice!) as described above (Changing the 4 digit code).

#### Parental Control Disclaimer

This DVD player features the **PARENTAL CONTROL** system which is intended to activate when playing DVD discs furnished with certain software coding. This is according to technical standards adopted by the set maker and disc content industries. Please note that the **PARENTAL CONTROL** system will not operate a DVD disc which is not furnished with the appropriate software coding. Also note that at the time of release of this DVD player, certain aspects of the technical standards had not been settled between set makers and the disc industries.

On this basis Philips cannot guarantee the functioning of **PARENTAL CONTROL** system and denies any liability associated with unintended watching of disc content. If in doubt, please make sure the disc plays according to your **PARENTAL CONTROL** settings before you allow children access to the player.

## Before Requesting Service

If it appears that the DVD Video player is faulty, first consult this checklist. It may be that something has been overlooked. Under no circumstances attempt to repair the system yourself; this will invalidate the warranty.

Look for the specific symptom(s). Then perform only the actions listed to remedy the specific symptom(s).

Symptom	Remedy
<b>No power</b>	<ul style="list-style-type: none"> <li>Make sure the power cord is properly connected.</li> <li>Check if there is power at the AC outlet by plugging in another appliance.</li> </ul>
<b>No picture</b>	<ul style="list-style-type: none"> <li>Check if the TV is switched on.</li> <li>Check the video connection.</li> </ul>
<b>Distorted picture</b>	<ul style="list-style-type: none"> <li>Check the disc for fingerprints and clean the disc with a soft cloth, wiping from the centre to the edge in a straight line.</li> <li>Sometimes a small amount of picture distortion may appear. This is not a malfunction.</li> </ul>
<b>Completely distorted picture or no colour with player menu.</b>	<ul style="list-style-type: none"> <li>If the picture is distorted completely or if the picture rolls vertically, make sure the NTSC/PAL setting at the DVD player matches the video signal of your television.</li> <li>If your TV video signal is NTSC, select the NTSC setting at the DVD player.</li> <li>If your video signal is PAL, select the PAL setting - see NTSC/PAL SETTINGS.</li> </ul>
<b>Distorted or Black/White picture with DVD or Video CD.</b>	<ul style="list-style-type: none"> <li>The disc format does not match your TV's video signal (PAL/NTSC) - see NTSC/PAL Conversion.</li> </ul>
<b>No sound</b>	<ul style="list-style-type: none"> <li>Check audio connections.</li> <li>If you are using a HiFi amplifier, try another sound source.</li> </ul>
<b>Distorted sound from HiFi amplifier.</b>	<ul style="list-style-type: none"> <li>Check to make sure that no audio connections are made to the amplifier phono input.</li> </ul>
<b>No audio at digital output.</b>	<ul style="list-style-type: none"> <li>Check the digital connections.</li> <li>Check the settings menu to make sure the digital output is set to ALL or PCM.</li> <li>Check if the audio format of the selected audio language matches your receiver capabilities.</li> <li>Not applicable for MP3.</li> </ul>
<b>Disc can't be played.</b>	<ul style="list-style-type: none"> <li>Ensure the disc label is facing up.</li> <li>Clean the disc.</li> <li>Check if the disc is defective by trying another disc.</li> <li>Check to see if the disc is defective, badly scratched or warped (not flat).</li> </ul>
<b>No return to start-up screen when disc is removed.</b>	<ul style="list-style-type: none"> <li>Reset the unit by switching the player off, then on again.</li> <li>Check to see if the programme requires another disc to be loaded.</li> </ul>
<b>The player does not respond to the remote control.</b>	<ul style="list-style-type: none"> <li>Aim the remote control directly at the sensor on the front of the player.</li> <li>Remove any obstacles between the player and the remote control.</li> <li>Inspect or replace the batteries in the remote control.</li> </ul>
<b>Buttons do not work.</b>	<ul style="list-style-type: none"> <li>In order to completely reset the player, unplug the AC cord from the AC outlet. (Please ensure that the set is not in Initial Setup mode)</li> </ul>
<b>Player does not respond to some operating commands during playback.</b>	<ul style="list-style-type: none"> <li>Operations may not be permitted by the disc. Refer to the instructions of the disc.</li> </ul>
<b>DVD Video player cannot read CDs/DVDs</b>	<ul style="list-style-type: none"> <li>Use a commonly available cleaning CD/DVD to clean the lens before sending the DVD Video player for repair.</li> </ul>

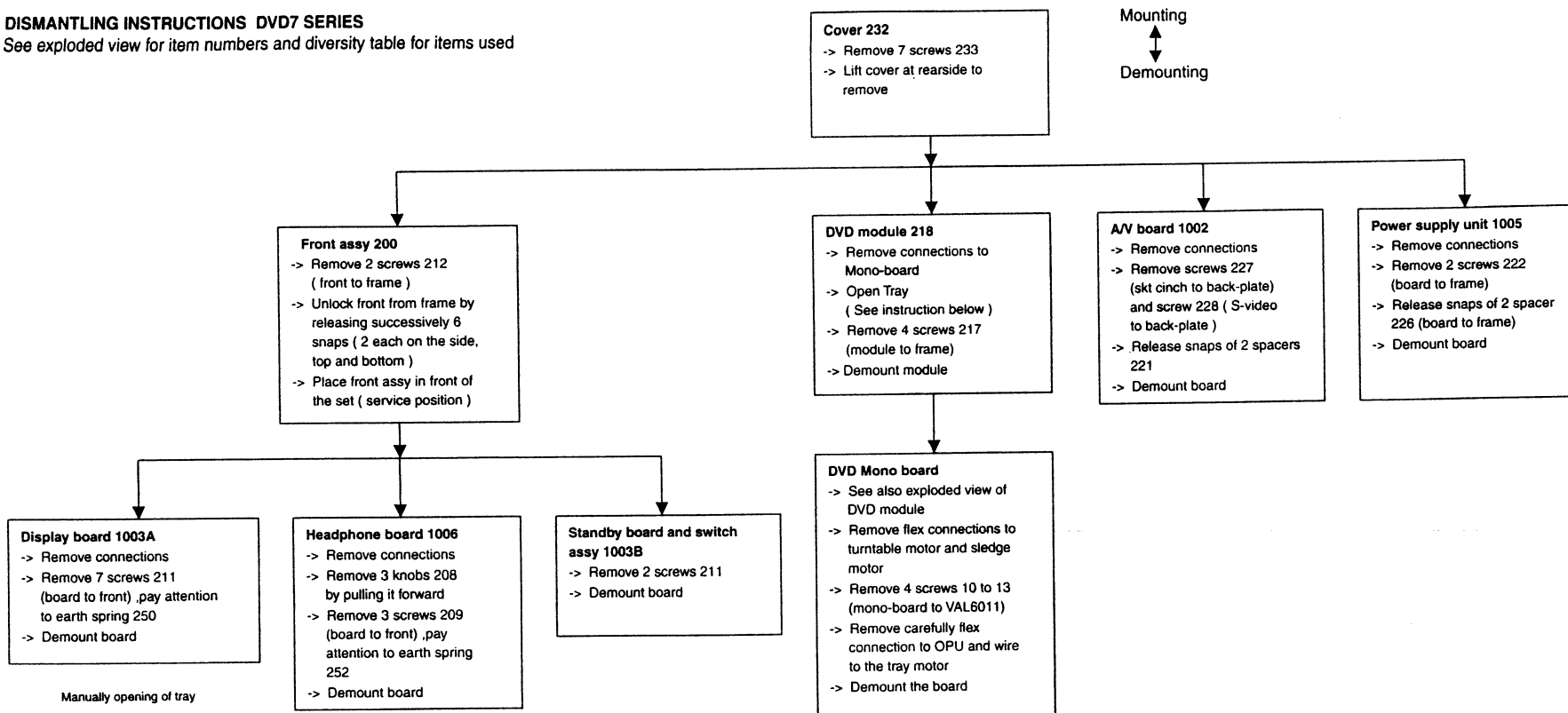
## Personal Notes:

## 4. Mechanical instructions

### 4.1 Dismantling instructions

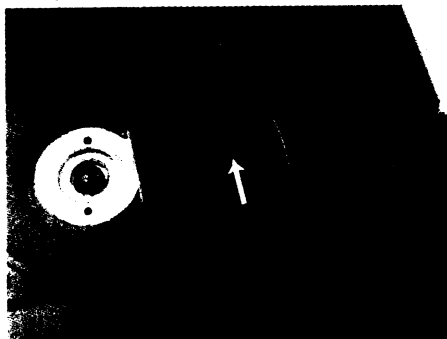
#### DISMANTLING INSTRUCTIONS DVD7 SERIES

See exploded view for item numbers and diversity table for items used

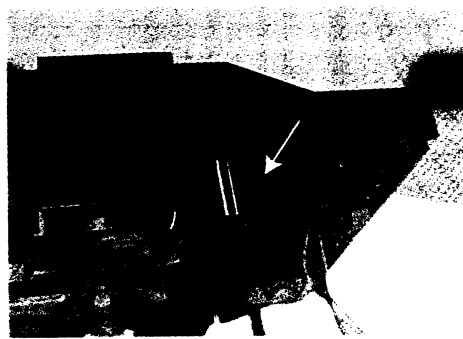


Manually opening of tray

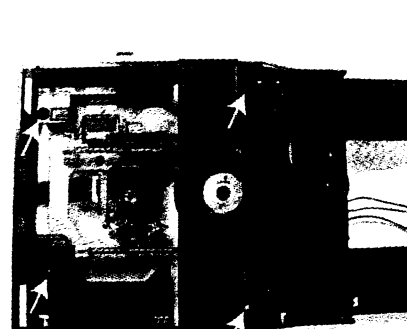
When it is not possible to open the tray with the open/close button, the tray can manually be opened.  
When no disc is loaded, unlock the tray by moving the slide from the left to the right and pull tray outwards.

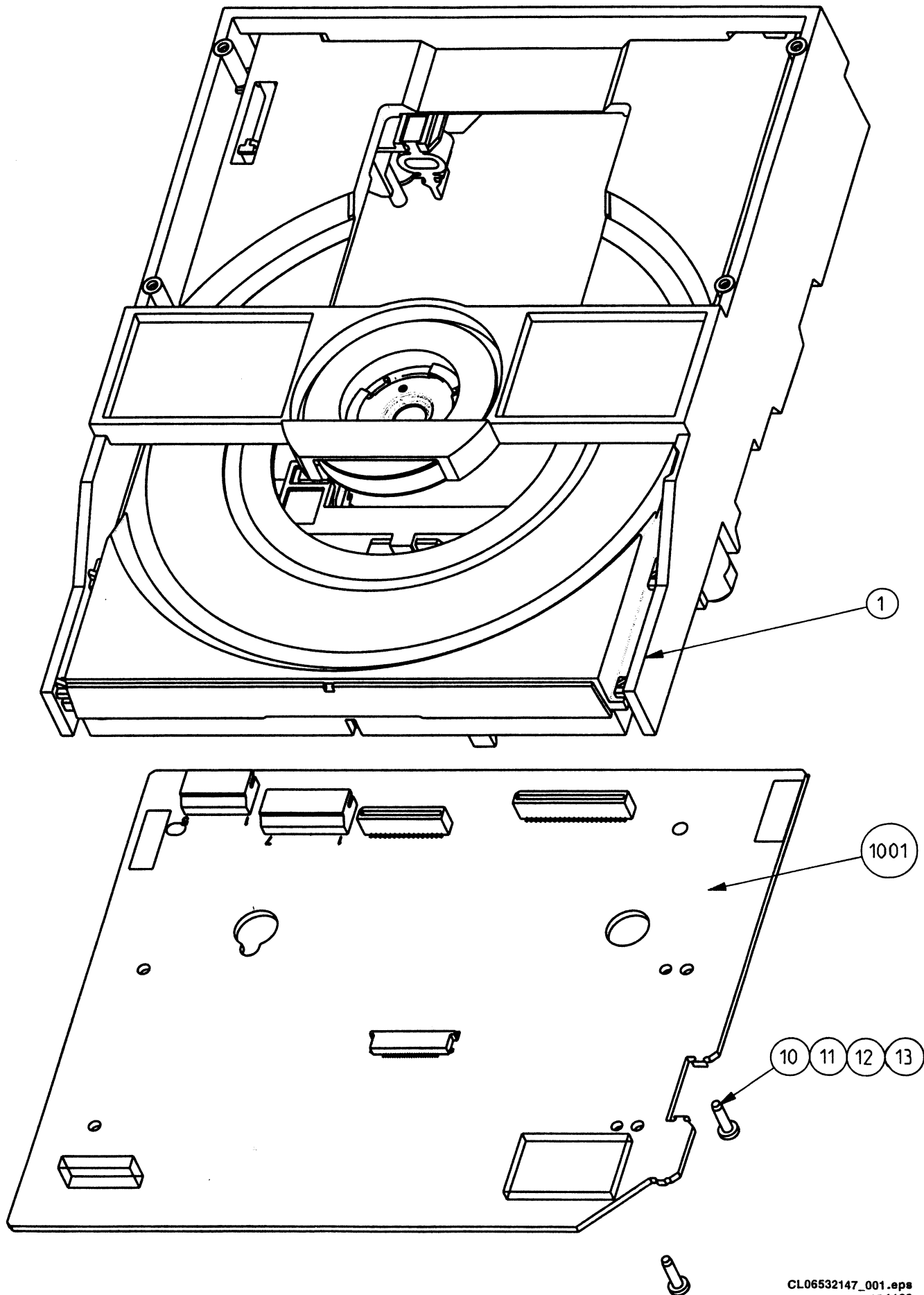


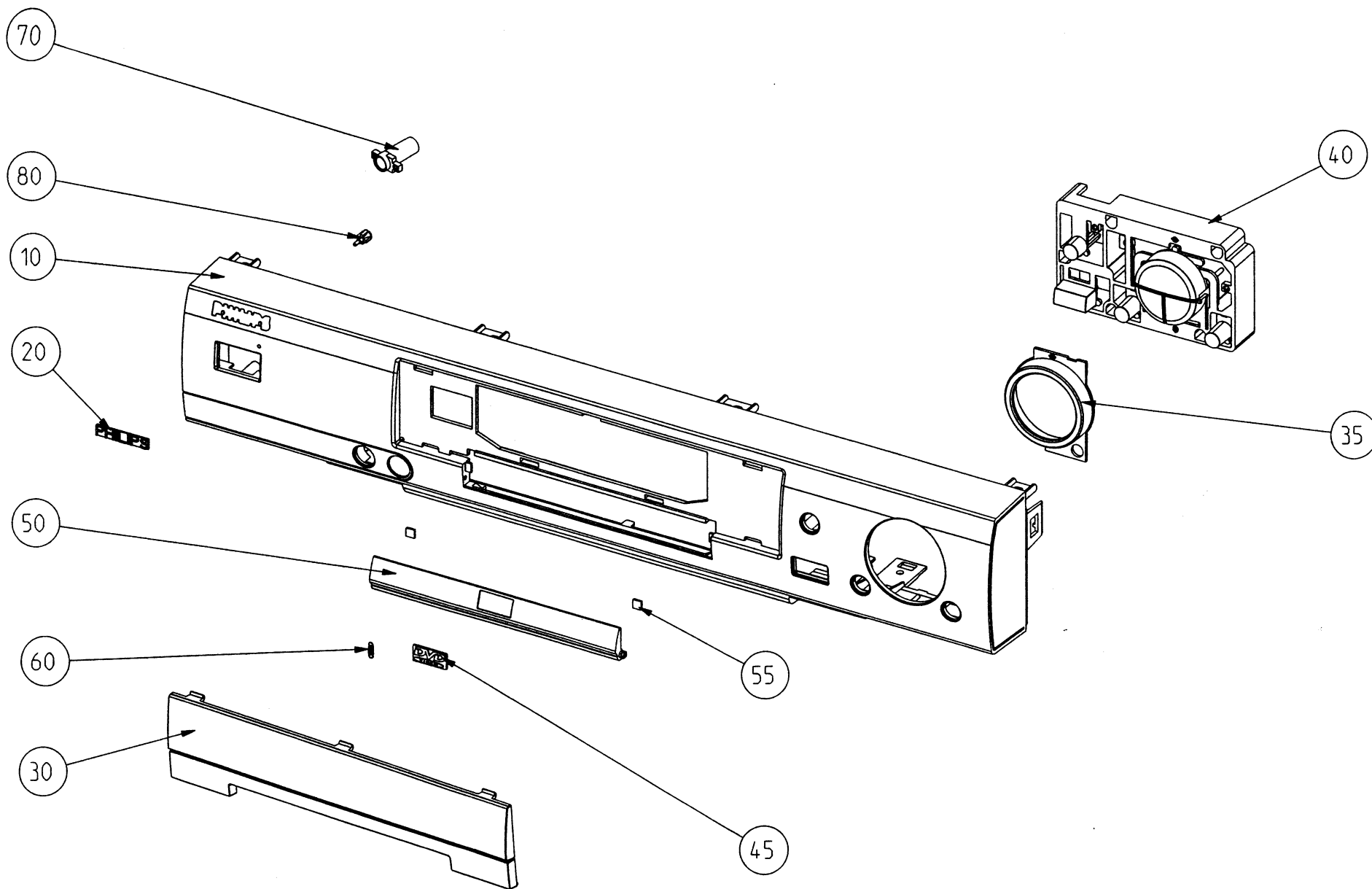
When a disc is loaded, unlock the tray by pushing the slide inwards by way of a screwdriver and pull tray outwards.



Remove 4 screws to remove loader.







Item number correspond to part list



### 4.3 Service position

See figure 4-1 for the service position

1. Remove the cables from the cable tie housing.
2. Remove 4 screws that mount the DVD module to the bottom frame.
3. Move the DVD module backward slightly and flip the module over, so that the component side of the board faces upwards, and the module is in the service position.

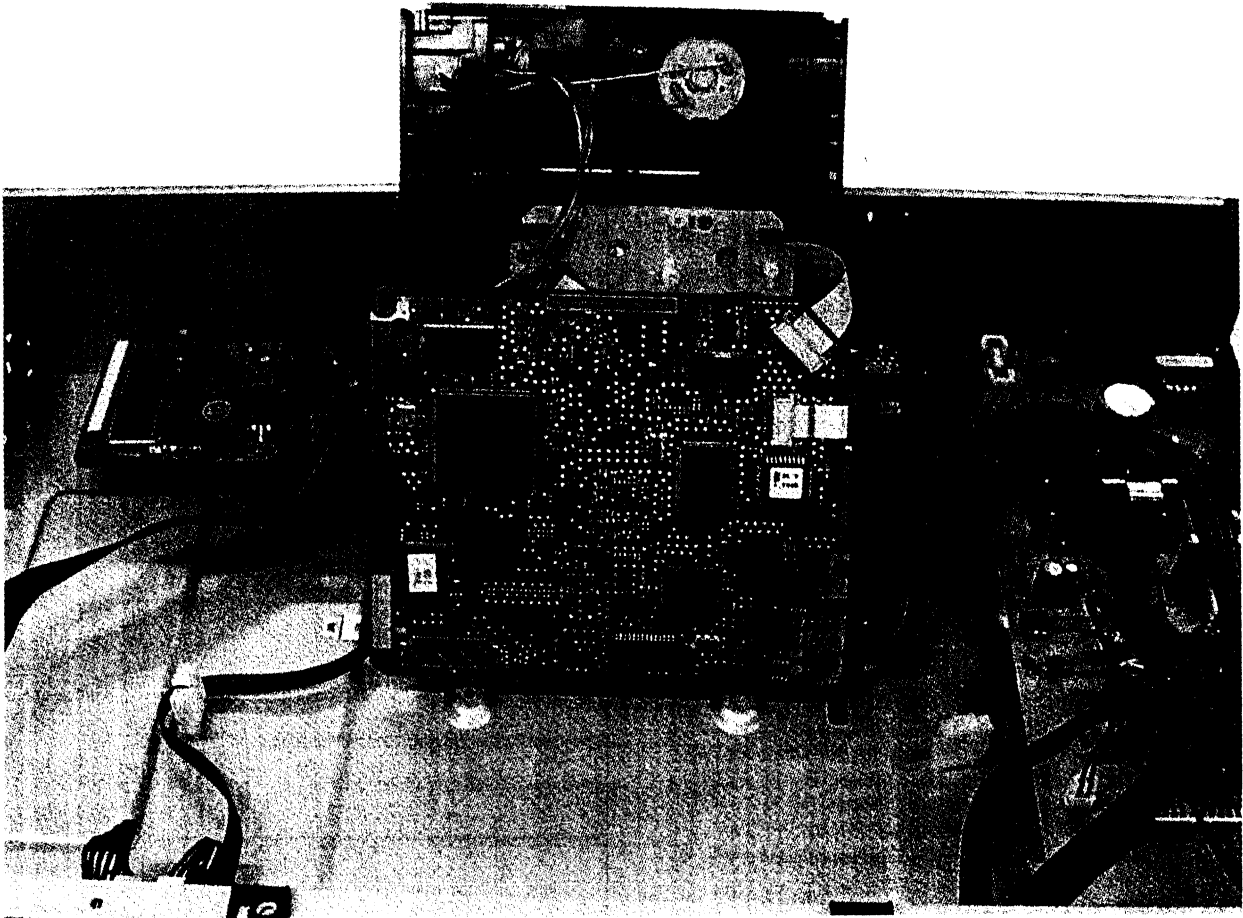


Figure 4-1

## 5. Diagnostic Software Descriptions And Troubleshooting

### 5.1 Dealerscript

#### 5.1.2 Contents Of Dealer Script

#### 5.1.1 Purpose Of Dealer Script

The dealer script can give a diagnosis on a standalone DVD player; no other equipment is needed to perform a number of hardware tests to check if the DVD player is faulty. The diagnosis is simply a "error" or "pass" message; no indication is given of faulty hardware modules. Only tests within the scope of the diagnostic software will be executed hence only faults within this scope can be detected.

Nucleus		Description
VideoColSetupComm	7	Checks the I2C interface with the RGB video processor on the Audio/Video board (only for DVD players with RGB video processor).
PapChksFl	6	Calculate and verify checksum of FLASH memory.
Papl2cDisp	5	Checks the I2C interface with the slave processor on the display PCB.
PapS2bEcho	4	Checks the I2C interface to the basic engine.
Papl2cNvram	3	Checks the I2C interface with the NVRAM.
PapNvramWrR	2	Pattern test of all locations in the NVRAM
CompSdramWrR	1	Pattern test of all locations in the SDRAM(s).

CL 06532096\_001 eps  
050700

Figure 5-1

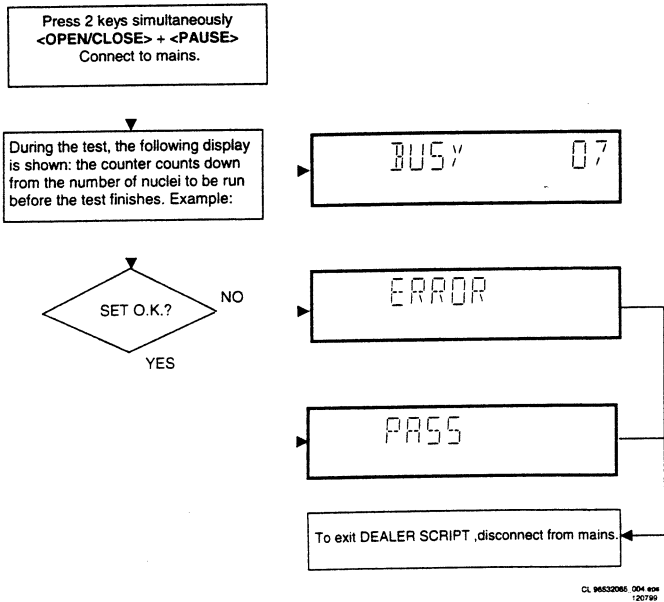


Figure 5-2

### 5.2 Player Script

#### 5.2.1 Purpose Of Player Script

The Player script will give the opportunity to perform a test that will determine which of the DVD player's modules are faulty, to read the error log and error bits and to perform an endurance loop test. To successfully perform the tests, the DVD player must be connected to a tv set to check the output of a number of nuclei. For DVDv2b a multi-channel amplifier, a set of 6 boxes and an external video source are necessary to test. To be able to check results of certain nuclei, the player script expects some interaction of the user (i.e. to approve a test picture or a test sound). Some nuclei (e.g. nuclei that test functionality of the Basic Engine module) require that the DVD player itself is opened, to enable the user to observe moving parts and approve their movement visually. Only tests within the scope of the diagnostic software will be executed hence only faults within this scope can be detected.

#### 5.2.2 Contents Of Player Script

The player script contains all nuclei that are useful on a DVD player that is connected to a tv-set and help to determine which module of the DVD player is faulty, as well as to read out the contents of the error logs.

#### 5.2.3 Structure Of Player Script

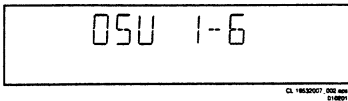
The player script consists of a set of nuclei testing the three hardware modules in the DVD player: the Display PWB, the Digital PWB and the Basic Engine.

Nuclei run by the player test need some user interaction; in the next paragraph this interaction is described. The player test is done in two phases:

1. Interactive tests: this part of the player test depends strongly on user interaction and input to determine nucleus results and to progress through the full test. Reading the error log and error bits information can be useful to determine any errors that occurred recently during normal operation of the DVD player.
2. The loop test will loop through the list of nuclei indefinitely, till the NEXT key is pressed. The list of nuclei is as follows:
  - VideoColSetupComm
  - VideoScartSwComm
  - PapChksFlash
  - Papl2cNvram
  - CompSdramWrR
  - PapS2bEcho
  - Papl2cDisp

For DSW version 1.6 and above, the DSW version number will be displayed on the local display. Press NEXT to continue to the display test.

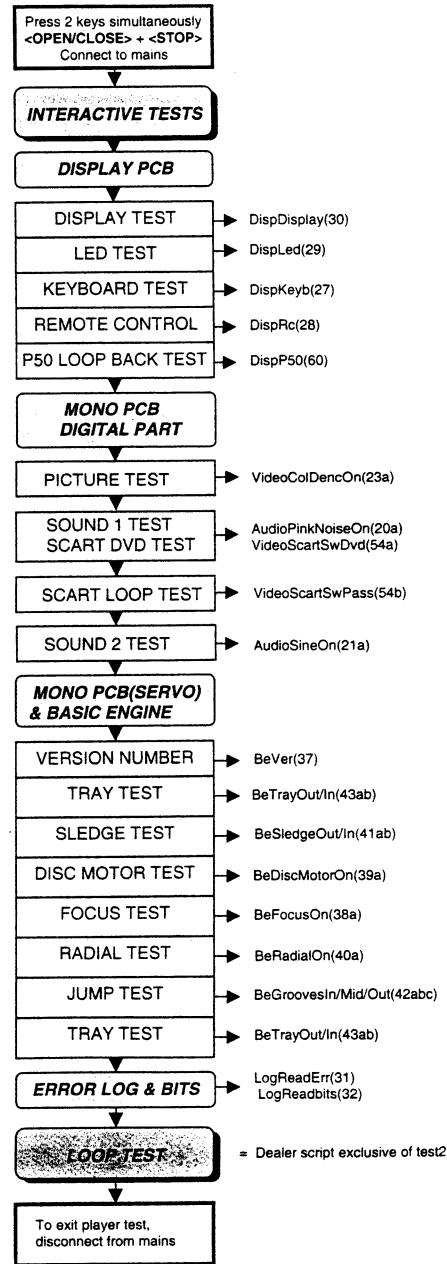
The display should look like the following:



CL 18532007\_002 eps  
010001

Figure 5-3

#### 5.2.4 Survey



CL 18532007\_003 eps  
200101

Figure 5-4



### 5.3 Display PCB

#### 5.3.1 Display Test

The display test is performed by nucleus DispDisplay. By putting a series of test patterns on the local display, the local display is tested. To step through all different patterns, the user must either press PLAY (pattern is ok) or PAUSE (pattern was incorrect) to proceed to the next pattern. The display of patterns is continued in a cyclic manner until the user presses NEXT. If the user presses NEXT before all display patterns are tested, the DispDisplay nucleus will return TRUE (display test successful).

#### 5.3.2 LED Test

The LED(s) on the DVD player is (are) tested by nucleus DispLed. The user must check if the LED(s) is (are) lighted; if it is, press PLAY, if it is not, press PAUSE. By pressing NEXT the script will proceed to the next test. If the user presses NEXT before PLAY or PAUSE, the DispLed nucleus will return TRUE (LED test successful).

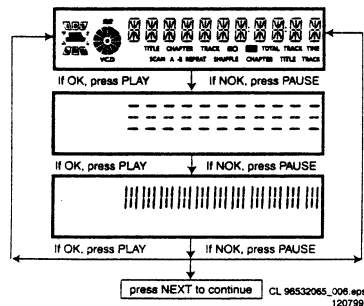


Figure 5-5

#### 5.3.3 Keyboard Test

The keyboard of the DVD player is tested by nucleus DispKeyb. The user is expected to press all keys on the local keyboard once. The code of the key pressed is shown on the local display (1 hexadecimal digit) immediately followed by a (hexadecimal) number indicating how many times that key has been pressed. Example of the local display during this test:

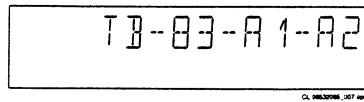


Figure 5-6

The key-codes displayed on the local display will scroll from right to left when the display gets full, the text "Tb-" will remain on display.

key id.	key
0	PLAY
1	NEXT
2	PREVIOUS
3	PAUSE
4	STOP
5	OPEN/CLOSE
6	3D-SURROUND
7	KEY- (Mic Control)
8	Once More (Mic Control)
9	KEY+ (Mic Control)
A	STAND BY

CL 16532007\_007.asp  
300101

Figure 5-7

If any keys are detected more than once (due to hardware error), the key-code is displayed twice (or more), with the second digit increased by 1. If the user does not press all keys minimally once (in any order), the DispKeys nucleus will return FALSE and cause an error in the overall result of the player script. The test will also pass if all buttons, except the microphone key buttons, are pressed. The user can leave the keyboard test by pressing the NEXT key on the local display of the DVD player for at least one full second. The result of the keyboard test is shown on local display as follows:

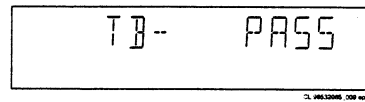


Figure 5-8

Or

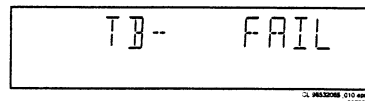


Figure 5-9

Pressing NEXT on the local keyboard again will proceed to the next test.

#### 5.3.4 Remote Control Test

The remote control of the DVD player is tested by nucleus DispRc. The user must press any key on the remote control just once. The codes of the key pressed will be shown on the local display in hexadecimal format. Example:

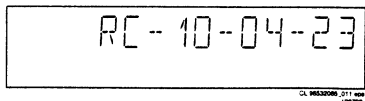


Figure 5-10

In this example 23 is the hexadecimal code of the pressed RC key. The user can leave the remote-control test by pressing NEXT on the local keyboard of the DVD player. The remote

control test is successful if a code was received before the user pressed the NEXT key; pressing the NEXT key before pressing a key on the remote control gives an error in the remote control test (note that the remote control test will also fail if a key on the remote control was pressed but no code was received). The remote control test does not check upon the contents of the received code, that is it will not be checked if the received code matches the key pressed. If desired, the user can manually check this code by using a code-table for the remote control key-codes.

C Key id	Hexadecimal code
STANDBY	0C
STOP	31
PLAY	2C
PLAY BACKWARD	2D
PAUSE	30
STEP FORWARD	F6
STEP BACKWARD	F5
FORWARD	28
FORWARD 4X	0F
FORWARD 8X	E0
BACKWARD	29
BACKWARD 4X	DE
BACKWARD 8X	DD
SLOW	22
SLOW 2	09
SLOW BACKWARD	23
SLOW BACKWARD 2	DA
NEXT	20
PREVIOUS	21
CURSOR UP	58
CURSOR DOWN	59
CURSOR LEFT	5A
CURSOR RIGHT	5B
OK	5C
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
TOGGLE	C8
ANGLE	85
AUDIO	4E
SUBTITLES	4B
SUBTITLE ON/OFF	E3
ROOT MENU	54
TITLE MENU	71
MENU	01
SETUP MENU	82
OSD ON/OFF	F
RETURN	83
RESUME	D7
SCAN	2A
SHUFFLE	1C
REPEAT	1D
A/B REPEAT	3B
TOGGLE SCART	43
OPEN/CLOSE	42
FTS	FB
KARAOKE	E4
OPTION	FA

Figure 5-11

After pressing NEXT, the result of the remote control test is displayed on the local display of the DVD player as follows:

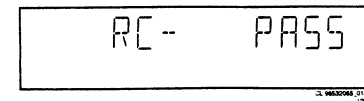


Figure 5-12

Or

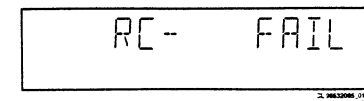


Figure 5-13

Pressing NEXT on the local keyboard again will proceed to the next test.

#### 5.3.5 P50 Loop-Back Test

For the P50 loop-back test, the user must first press a key to decide if the test is to be performed. The display will show the following message:

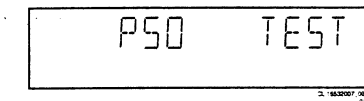


Figure 5-14

If the user presses PAUSE, the P50 test will be skipped. If the user presses PLAY, the P50 test is performed and the result is displayed as follows:

Test successful:

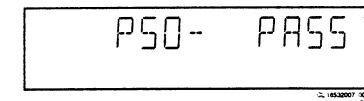


Figure 5-15

Test fails:

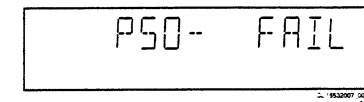


Figure 5-16

Press the NEXT key to continue to the next test

### 5.4 Mono PCB Digital Part

#### 5.4.1 Picture Test

The picture test is performed by putting a predefined picture (colour bar) on the display (nucleus VideoColDencOn) and

asking the user for confirmation. The display will show the following message:

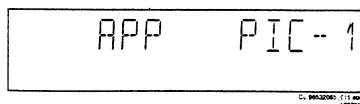


Figure 5-17

By pressing PLAY the user confirms the test, pressing PAUSE will indicate the picture was invisible or incorrect. Pressing NEXT will proceed to the next test

#### 5.4.2 Sound 1 & SCART DVD Test

The first soundtest is performed by starting a pink noise sound that needs confirmation from the user (nucleus AudioPinkNoiseOn); the display will show the following message very shortly:

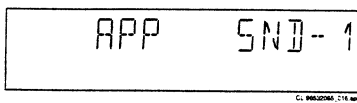


Figure 5-18

This sound will only be audible from version cut3.1 of Sti5505(item7503 on mono board) onwards. After starting up sound 1, SCART loop-trough will be simultaneously active during this test. SCART loop-trough will be measured with the aid of an external video source. When entering the SCART loop-trough, the local display indicates:

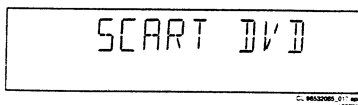


Figure 5-19

On the TV screen a colour bar (generated by nucleus VideoColDencOn) is visual and the internally generated pinknoise is audible. By pressing PLAY the user confirms the test, pressing PAUSE will indicate the sound was inaudible or incorrect. Pressing NEXT will proceed to the next test; if the user presses NEXT without pressing PLAY or PAUSE first, the result of this test will be TRUE (sound ok). By pressing the NEXT button there will be switched over to the external source, this must become now visible on the TV screen (using the SCART). The local display indicates:



Figure 5-20

The internally generated colour bar is still available on the CVBS and Y/C outputs. And the pinknoise-signal is still available on the cinch audio outputs. By pressing the PREV button, the internal generated colour bar becomes visual again.

The test can be left by pressing the NEXT key for more than one second.

#### 5.4.3 Sound 2 Test

The second soundtest is performed by producing a sine sound (nucleus AudioSineOn). The signal can be stopped by pressing the STOP-key. The display will show the following message:

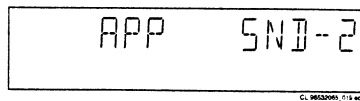


Figure 5-21

By pressing PLAY the user confirms the test, pressing PAUSE will indicate that something went wrong. Pressing NEXT will proceed to the next; if the user presses NEXT without pressing PLAY or PAUSE first, the result of this test will be TRUE (sound ok).

#### 5.4.4 Colour Setup Test

The colour setup test is performed by putting the internally generated colour bar in different settings on the TV screen. The first colour bar will be displayed in setting 1, the display will show the following message:

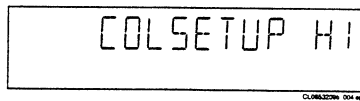


Figure 5-22

By pressing the NEXT button, you can go to the second setting. The local display indicates:

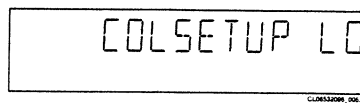


Figure 5-23

By pressing the PREVIOUS button, the colour bar with the first setting becomes visual again. By pressing PLAY the user confirms the test, pressing PAUSE will indicate that something went wrong. The test can be left by pressing the NEXT key for more than one second; if the user presses NEXT without pressing PLAY or PAUSE first, the result of the test will be TRUE (colour setup ok).

### 5.5 Basic Engine

#### 5.5.1 Version Number

In the basic engine tests, the version number of the Basic Engine will be shown first, as the following example:

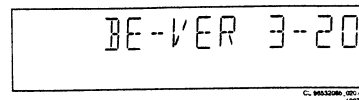


Figure 5-24

By pressing the NEXT key, the Basic Engine tests are started.

#### 5.5.2 Tray Test

First, the tray is tested. The purpose of this test is also to give the user the opportunity to put a disc in the tray of the DVD player. Some tests on the Basic Engine require that a disc(e.g. DVD MPTD test disc) is present in the player. At the end of the Basic Engine tests this tray test will be repeated solely to enable the user to remove the disc in the tray. The local display will look as follows:

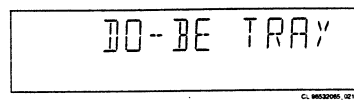


Figure 5-25

By pressing PLAY or PAUSE the user can toggle the position of the tray. Note that this test will not contribute to the test result of the Basic Engine. Pressing NEXT will proceed to the next test, after the tray has been closed (by the software) if it was open.

#### 5.5.3 Sledge Test (Visual Test)

The second Basic Engine test tests the sledge; the user can move the sledge as many times as desired by using PLAY (nucleus BeSledgeOut) and PAUSE (nucleus BeSledgeIn). Pressing NEXT on the local keyboard proceeds to the next test. Note that this test will not contribute to the test result of the Basic Engine. The local display will look as follows during the sledge test:

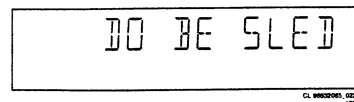


Figure 5-26

#### 5.5.4 Disc Motor Test (Visual Test)

The third Basic Engine test tests the disc motor (nucleus BeDiscMotorOn); the local display looks as follows:

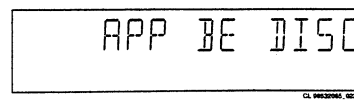


Figure 5-27

By pressing PLAY the user confirms that the disc motor is running; pressing PAUSE indicates the disc motor does not work. Pressing NEXT proceeds to the next test, after a reset

of the disc motor (nucleus BeDiscMotorOff). If the user presses NEXT before pressing PLAY or PAUSE, the result of this test will be TRUE (disc motor is running).

#### 5.5.5 Focus Test (Visual Test)

The fourth Basic Engine test tests the focussing; first focussing is turned on by calling nucleus BeFocusOn. The display will look as follows:

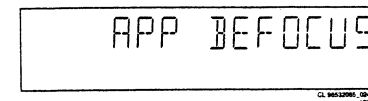


Figure 5-28

By pressing PLAY the user confirms that the focussing was successful; pressing PAUSE indicates a focussing failure. Pressing NEXT proceeds to the next test after a reset of the focussing (nucleus BeFocusOff); if NEXT is pressed before PLAY or PAUSE, the result of this test will be TRUE (focus successful).

#### 5.5.6 Radial Test (Visual & Listening Test)

The fifth Basic Engine test tests the radial functionality (nucleus BeRadialOn); the local display looks as follows:

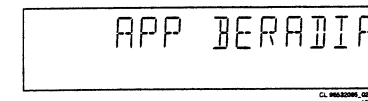


Figure 5-29

By pressing PLAY the user confirms that the radial function worked; pressing PAUSE indicates the function does not work. Pressing NEXT proceeds to the next test, after a reset of the radial (nucleus BeRadialOff). If the user presses NEXT before pressing PLAY or PAUSE, the result of this test will be TRUE (radial successful).

#### 5.5.7 Jump Test (Listening Test)

The sixth and last Basic Engine test tests the jumping by calling nuclei BeGroovesIn, BeGroovesMid and BeGroovesOut. During this test, the local display looks as follows:

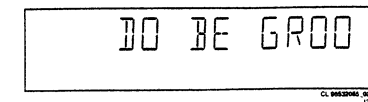


Figure 5-30

The user can switch between the three different types of groove settings by pressing PLAY (forward to next nucleus in the list In-Mid-Out) or PAUSE (backward in the list In-Mid-Out). This is done in a cyclic manner; note that this test will not contribute to the test result of the Basic Engine. Pressing NEXT proceeds to the next test, after the disc motor has been shut off with a call to nucleus BeDiscMotorOff.

## 5.5.8 Tray Test

As a last action for the Basic Engine tests, the tray test is repeated. The local display will look as follows:

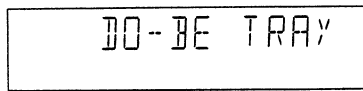


Figure 5-31

This test is meant to give the user the opportunity to remove the disc in the tray. The tray position can be toggled using the PLAY and PAUSE key. The tray will be closed (by the software, if it is open) before proceeding to the next test when the user presses the NEXT key.

## 5.5.9 Error Log (See Table On Page 30)

Reading the error log and error bits information can be useful to determine any errors that occurred recently during normal operation of the DVD player. Reading the error log is done by nucleus LogReadErr. The display during the errorlog readout looks as follows :

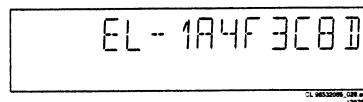


Figure 5-32

By pressing PLAY or PAUSE the user can move forward or backward (respectively) through the logged error codes. The highlighted number indicates which errorcode is currently on display (in the example above, errorcode number 4 is displayed). If "0000" is displayed at all positions, the error log is empty. Display of the logged errors is done in a cyclic manner. The errorcode with the lowest highlighted number is the most recent. By pressing NEXT on the local keyboard, the user can proceed to the next test.

## 5.5.10 Error Bits (See Table On Page 30)

Reading the error bits is done by nucleus LogReadBits. The display during the errorbits readout looks as follows:

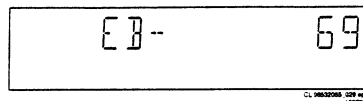


Figure 5-33

Only the set errorbits will be shown by their (decimal) number. Refer to the appropriate documentation for the explanation of each bit number. If the display only shows "EB-0", no error bits were set. By pressing NEXT the user can continue to the next test.

## 5.6 Loop Test (See Table Below)

At the start of the loop test, the display will show the result of the interactive player test:

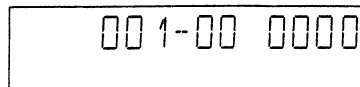


Figure 5-34

The left side of the display contains a 3-digit code, which can have a value between 000 and 111. These values are to be interpreted as follows:

Displayed Value	Indication for each module		
	Basic Engine	Mono PCB	Display PCB
000	ok	ok	ok
001	ok	ok	faulty
010	ok	faulty	ok
011	ok	faulty	faulty
100	faulty	ok	ok
101	faulty	ok	faulty
110	faulty	faulty	ok
111	faulty	faulty	faulty

Figure 5-35

The loop test will perform the same nuclei as the dealer test, but it will loop through the list of nuclei indefinitely. The display of the DVD player will display not only the three digits indicating correct/faulty modules and the last found error code (as mentioned, faults are detected as far as they can be within the scope of the diagnostic software), but also a loop counter indicating how many times the loop has been gone through. Example:

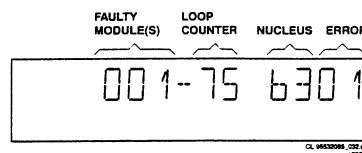


Figure 5-36

The number after the hyphen indicates the number of times the loop test has been performed; the 4 digits at the right side of the display show the last error that was found when running the loop test: the leftmost two digits of this code indicate which nucleus resulted in a fault; the rightmost two digits refer to the faultcode within that nucleus. For further explanation of this error code, see list of error codes below.

## ERROR CODES LOOP TEST

ERROR CODE	NUCLEUS NUMBER	ERROR DESCRIPTION
0601	6	Calculated checksum of FLASH is not correct
1101	11	I2C bus busy before start
1102		NVRAM access time-out
1103		No NVRAM Acknowledge
1104		NVRAM reply time-out
1201	12	I2C bus busy
1202		I2C bus not working
1203		Slave controller not responding
1204		Slave response is not correct
1301	13	Parity error from basic engine to serial
1302		Parity error from serial to basic engine
1303		No communication between serial and basic engine
1304		Communication time-out error
1601	16	The SDRAM is faulty
5201	52	I2C bus busy
5202		Error sending I2C command to COLOR SETUP IC
5203		Colour setup IC not responding
5204		Colour setup IC response is not correct
5401	54	I2C bus busy
5402		Error sending I2C command to SCART SWITCH IC
5403		SCART Switch is not responding
5403		SCART Switch response is not correct

Figure 5-37

Error log / bits table	Read ERROR LOG in player script	Read ERROR BITS in player script
Basic engine errors	Value:	Value:
Command to the Basic Engine not allowed in this state or unknown command	150101	8
Parameter(s) from the command to the Basic Engine is not valid	150102	7
Sledge could not be moved to the inner home position	150103	6
Focus failure	150104	5
Turntable motor speed could not be reached within timeout	150105	4
Radial servo could not get on track on the disc	150106	3
PLL could not lock in the accessing or tracking state	150107	2
Subcode or sector information could not be read	150108	1
requested subcode could not be found	150109	16
Tray could not be closed or opened completely	15010A	15
TOC could not be read within timeout	15010B	14
The requested seek on the disc could not be executed	15010C	13
A requested lead-in is not on the disc	15010D	12
A non existing burst cutting area is requested	15010E	11
S2b communication error	1501F0	10
S2b communication error	1501F1	9
S2b communication error	1501F3	24
S2b communication error	1501F4	23
S2b communication error	1501F5	22
Digital PWB errors		
Communication error with the Sti 5505	90000	32
Communication error with the Sti 5505	90001	31
Display processor errors		
Communication error with the display processor	190000	40

## 5.6.1 Servicing DVD Loader

The DVD Loader / mechanism, VAL6011, has to be exchanged completely in case of failure. A new mechanism can be ordered with codenumber 9305 023 61101.

## 5.6.2 Reprogramming Of New Mono Boards.

**Caution**

*This information is confidential and may not be distributed. Only a qualified service person should reprogram the mono board.*

After reset of NV-memory or repair of the mono board, all the customer settings and also the region code will be lost.

Reprogramming of the mono board will put the player back in the state in which it has left the factory, i.e. with the default settings and the allowed region code.

Reprogramming is limited to 25 times.

When the counter reaches 25, reprogramming is not possible anymore.

Reprogramming will be done by way of the remote control.

Put the player in stop mode and use loaded.

Press the following keys on the remote control:

**<PLAY>** followed by numerical keys **<1>** **<5>** **<9>**

The display shows:

Press now successively the following keys:

for DVD712 /001 /021 /051 : **<0>** **<2>** **<8>** **<0>** **<0>** **<0>** **<0>** **<0>** **<0>** **<0>** **<0>** **<0>**

for DVD722 /001 /021 /051 : **<0>** **<2>** **<9>** **<0>** **<0>** **<0>** **<0>** **<0>** **<0>** **<0>** **<0>** **<0>**

Press **<PLAY>** again.

The TV screen will become BLUE during a short time to confirm that the mono board has been reprogrammed.

CL 165320C7\_074 808  
246401

Figure 5-38

## 5.6.3 Reset Of Virgin Mode

After the player has been powered up for test by the dealer, it would have gone through the Virgin Mode. It is possible to reset the settings made during that mode before the delivery of player to the customer. This can be done as shown in the following diagram:

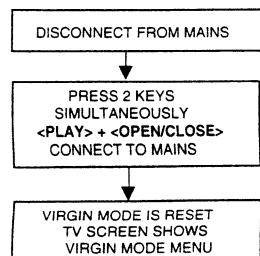
CL 96532065\_034 401  
070706

Figure 5-39

## TRADE MODE

When the player is in Trade Mode, the player cannot be controlled by means of the front key buttons, but only by means of the remote control.

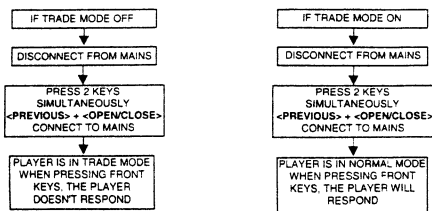
COM32096\_308 408  
260706

Figure 5-40

## 5.7 Test Instruction Audio/Video Board

These test instructions can be used for all versions of the A/V board which has the following outputs:

- Audio L/R
- 5.1 Audio output
- Subwoofer output
- Optical / Coaxial digital output
- CVBS
- Y/G\_vid,U/B\_vid,V/R\_vid output
- S-video
- Scart output

## 5.7.1 General

- All the waveforms measurement carried out in these test instruction will be base on the testpoint indicated in the A/V board schematic diagram in the Service manual.
- Impedance of the measuring-equipment should be > 1MΩ
- Most of the tests can be done using either the Diagnostic software "Player script" which can be found in the chapter "Diagnostic Software description and troubleshooting" or the Menu interface using the Service PC with a terminal emulation program ( e.g. Window Hyperterminal ) where it is possible to control the execution of the Diagnostic Nuclei
- Setup for the measurement will be done in set level with all modules connected as shown in the Wiring Block diagram.

## 5.7.2 General Start-Up Measurement

## Supply Check:

Before starting the measurement, ensure that all power supply are connected to the A/V board.

Pin nbr	Supply
1010-9	-5V ( -Vcc )
1010-10	+5V
1010-11	+5V

The supply currents can be measured using a Tektronics AM503B current probe or equivalent.

Supply	Power consumption ( AVG )
+5VA	+5V ± 3% I = 200mA
+5Vvid	+5V ± 3% I = 200mA
-5V	-5V ± 3% I = 200mA

## Clock Check

Ensure the present of the clock to the DAC

Clock Name	Testpoint	Frequency
PCM_CLK	TP10	11.2896MHz ± 0.02% tolerance

## Audio Mute Check

Measure the Audio mute voltage input at pin 12 of connector 1010

Status	Value
AudioMuteOn	4.7V ± 10%
AudioMuteOff	-8V ± 10%

To toggle between ON and OFF, use the following commands:

Ref.#	Command Name	Remarks
19a	AudioMuteOn	Audio Mute On
19b	AudioMuteOff	Audio Mute Off

## 5.7.3 Audio DAC And Amplifier

Ensure that the Audio mute signal is OFF

To check the DAC and buffer amplifier, send the following commands:

Ref.#	Command Name	Remarks	Audio output
21a	AudioSineOn	Audio Sine signal ON	Sine, 1KHz on stereo
----	Press stop button	Audio Sine signal OFF	No waveform
20a	AudioPinkNoiseOn	Audio Pinknoise ON	Pink Noise on 6 channels
20b	AudioPinkNoiseOff	Audio Pinknoise OFF	No waveform

The audio signal ( sine or pink noise ) will also be present on the digital output ( SPDIF ). This can be checked by connecting digital signal to an amplifier with digital input. Check the I2S and audio signal at the following testpoints:

Name	Testpoint
LRCLK	TP8
SCLK	TP9
PCM_CLK	TP10
PCM_OUT0	TP7
PCM_OUT1	TP27
PCM_OUT2	TP28
SPDIF	TP11
Front L/R out-Audio cinch	TP13
H/P L/R out	TP20
Analog out -Audio cinch	TP25

All waveforms can be refer to the waveform diagram in the chapter "Diagnostic software description and troubleshooting".

## 5.7.4 Video Output And Buffer Amplifier

Check DC output-level at all video cinch output : 1.0V DC ± 10%  
Generate a color bar using the following software commands:

Ref.#	Command Name	Remarks
23a	VideoColDencOn	Colour DENC ON
61a	VideoColOutRGB	RGB Colourbar
61b	VideoColOutYUV	YUV Colourbar
23b	VideoColDencOff	Colourbar DENC OFF

Check the video outputs at the following testpoints:

Name	Testpoint
B_VID	TP1
G_VID	TP2
R_VID	TP3
CVBS out	TP14
S-Video-C out	TP15
S-Video-Y out	TP16
Y out	TP17
U out	TP18
V out	TP19

All waveforms can be refer to the waveform diagram in the chapter "Diagnostic Software description and troubleshooting".

## 5.7.5 Play And 16/9 Detection

Check DC voltage at S-Video-chroma output (pin 4) with a 6K8 ohm load and Scart connector (pin 8) and change the 0/6/12 input (1010-8) using the following commands:

Ref.#	Command Name	Remarks	Chroma output
25a	VideoScartLo	Sends out 0V $\pm$ 0.5V	<0.1V
25b	VideoScartMi	Sends out 6V $\pm$ 10%	2.0V $\pm$ 10% with load 5.0V $\pm$ 10% without load
25c	VideoScartHi	Sends out 12V $\pm$ 10%	<0.1V

## 5.7.6 Kill Circuit

To check the functionality of the Kill circuitry, the audio outputs has to be present by the following command:

Ref.#	Command Name	Remarks	Audio output
21a	AudioPinkNoiseOn	Audio Pinknoise ON	Pink Noise on 6 channels

Check the audio outputs at the audio cinch of the A/V board  
: Pink Noise

Activate the Kill circuit by using the following command:

Ref.#	Command Name	Remarks
19a	AudioMuteOn	Audio Mute On

Check the audio outputs at the audio cinch of the A/V board  
: No waveform

Switch off the kill circuit by using the following command:

Ref.#	Command Name	Remarks
19b	AudioMuteOff	Audio Mute Off

Check the audio outputs at the audio cinch of the A/V board  
: Pink Noise

## 5.8 Test Instructions Display Board

## 5.8.1 Introduction

These test instructions are written for all versions of the display PCBAS.

The contents of the PCB can be split up into next blocks:

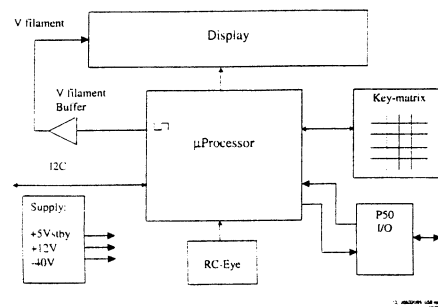


Figure 5-41

## 5.8.2 Functionality Description:

The essential component of the display PCB is the  $\mu$ P (slave). This slave works on an 8MHz resonator and has a reset circuit that is triggered by the +5Vstby. After the reset pulse, the standby control line will release the reset of the host  $\mu$ P. This host  $\mu$ P will then initialise the slave. In addition, when going to stand-by, the slave will put the host  $\mu$ P in reset. When the slave receives the right IR or key code to leave the standby mode, the reset of the host  $\mu$ P will be released.

Other slave functions are:

- Square signal generator to generate the filament voltage, which is required for an AC FTD.
- Generates the grid and segment scanning for the FTD.
- Generates a scanning grid for the keys (separated from display scanning).
- Has inputs for RC (RC5 and RC6) and P50 (P50 controller is built in).

## 5.8.3 General

- Oscilloscope measurements have been carried out using a Philips PM3392A.
- Impedance of measuring-equipment should be  $> 1\text{M}\Omega$ .
- To do correct measurements we recommend to use supply 3122 427 22570.

## 5.8.4 Reset

Check next reset timing with an oscilloscope at pin 10 of the microprocessor.

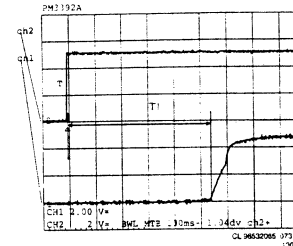


Figure 5-42

Timing:  $400\text{msec} < T1 < 700\text{msec}$ .  
CH1: +5Vstby voltage at power on.  
CH2: Voltage at pin 10.

## 5.8.5 Display Steering

Check next timing and level for all grid-lines (G1 r G14).

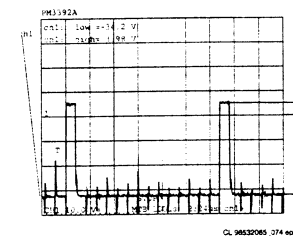


Figure 5-43

1. Check level A: +4V5  $\pm$  10% for grid lines 1  $\Rightarrow$  11
2. Check level A: +4V0  $\pm$  10% for grid lines 12  $\Rightarrow$  14
3. Check level B: -33V  $\pm$  10%
4. Check timing and levels of segment-lines P1  $\Rightarrow$  P10:

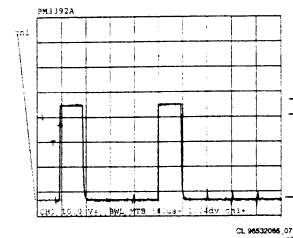


Figure 5-44

Level A: +4V5  $\pm$  10%  
Level B: -33V  $\pm$  10%  
The data on these segment lines depend on the characters that are displayed.  
The characters can be set by sending I2C commands to the display.

See the Slave URS how to send a display command.

## 5.8.6 Key-Matrix

Connect a extra 10k $\Omega$  pull-up to pin 36 en 37 of the  $\mu$ P and check next matrix scanning at these pins.

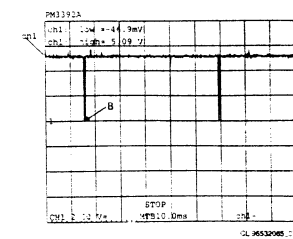


Figure 5-45

Level A: 5.0V  $\pm$  7%  
Level B: 0V  $\pm$  200mV  
Check matrix scanning from pin 26 until 33 of the  $\mu$ P.  
The results should be the same as the diagram above.

## 5.8.7 I.R. Receiver

Check at pin 23 of the  $\mu$ P if this line switches from low ( $< 0.3\text{V}$ ) to high ( $> 4.5\text{V}$ ), while pressing a key on a Philips RC5 or RC6 remote control.

## 5.8.8 Karaoke Interface

The karaoke interface (4 lines) is a single direction communication. This means that it consists of four  $\mu$ P output lines. The interface can be checked by setting or resetting these output-ports via the I2C bus.

Send next command via the I2C bus:

Address	: 0x70
Command byte	: 0x24
Data byte	: xxxxabcd
Where	: a = Karaoke reset.
	: b = Karaoke data.
	: c = Karaoke clock.
	: d = Karaoke strobe.

## 5.8.9 P50 Interface

P50 is a bi-directional serial interface, which is used for communication between video equipment. For European sets, this communication goes via pin 10 of the scart-bus. In other regions, it can be a cinch bus at the back of the set.

1. Keep the  $\mu$ P in reset by short-circuiting emitter and collector of transistor 7108, via resistor 3100 and 3104 transistor 7101 is switched on.
2. Check the voltage at the P50 output connector 1118-5:  $< 200\text{mV}$ .

When the reset is released the  $\mu$ P output-pin becomes low and transistor 7101 is switched off.

1. Check the voltage at the P50 output connector 1118-5: 4V9  $\pm$  5%.
2. Check also the  $\mu$ P P50 input ( $\mu$ P pin 20): 5V  $\pm$  5%.
3. Connect the P50 line (connector 1118-5) to ground.
4. Check again the  $\mu$ P P50 input ( $\mu$ P pin 20):  $< 0\text{V}$ .

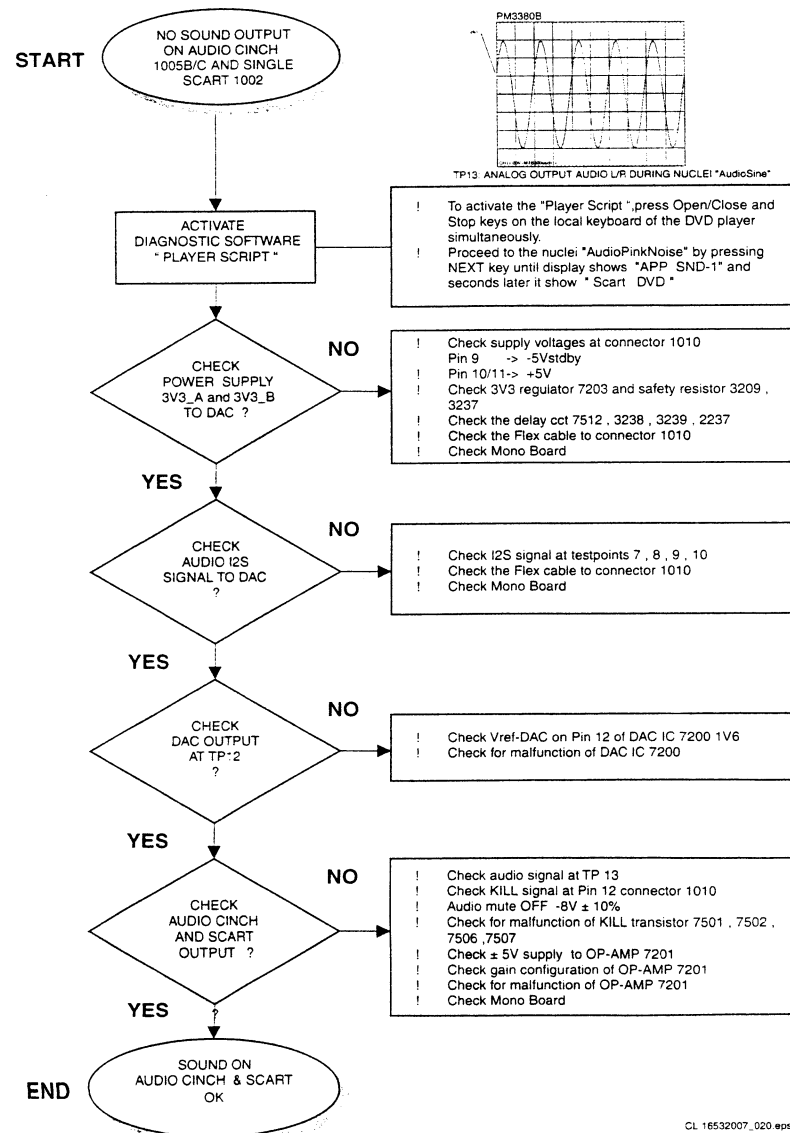
## 5.9 Troubleshooting

## 5.9.1 Troubleshooting A/V Board

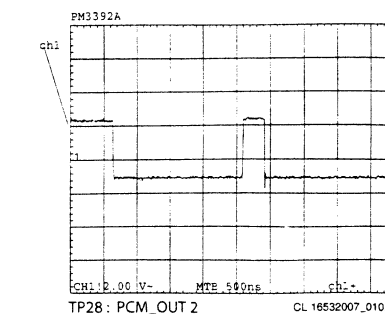
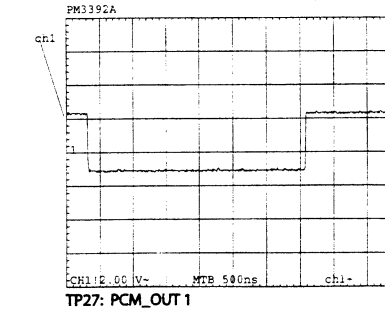
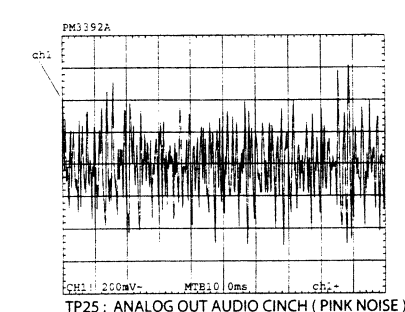
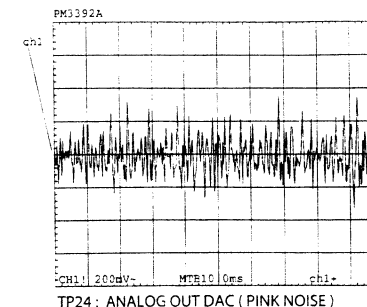
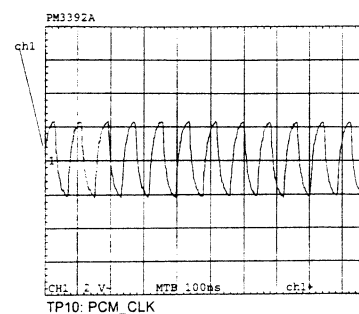
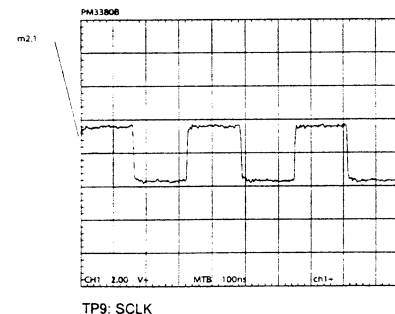
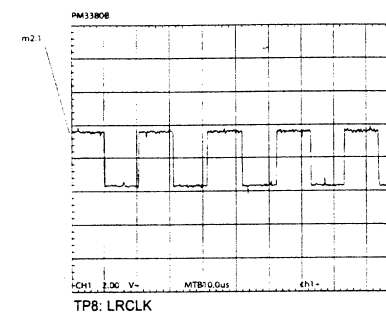
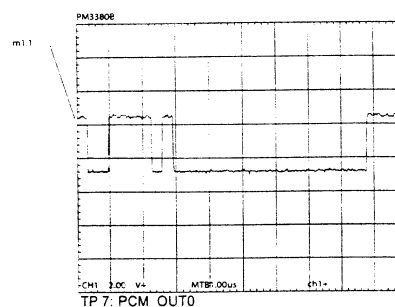
Testing of A/V board can be done using diagnostic software "PLAYER SCRIPT".

MONO board is used to generate a sound with the sound tests SND-1 and SND-2 or a VIDEO signal with the picture Test PIC-1. See description in the chapter of "DIAGNOSTIC SOFTWARE: SCRIPT INTERFACES".

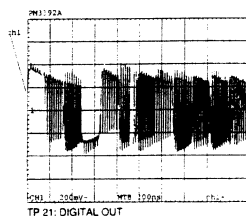
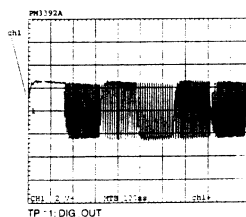
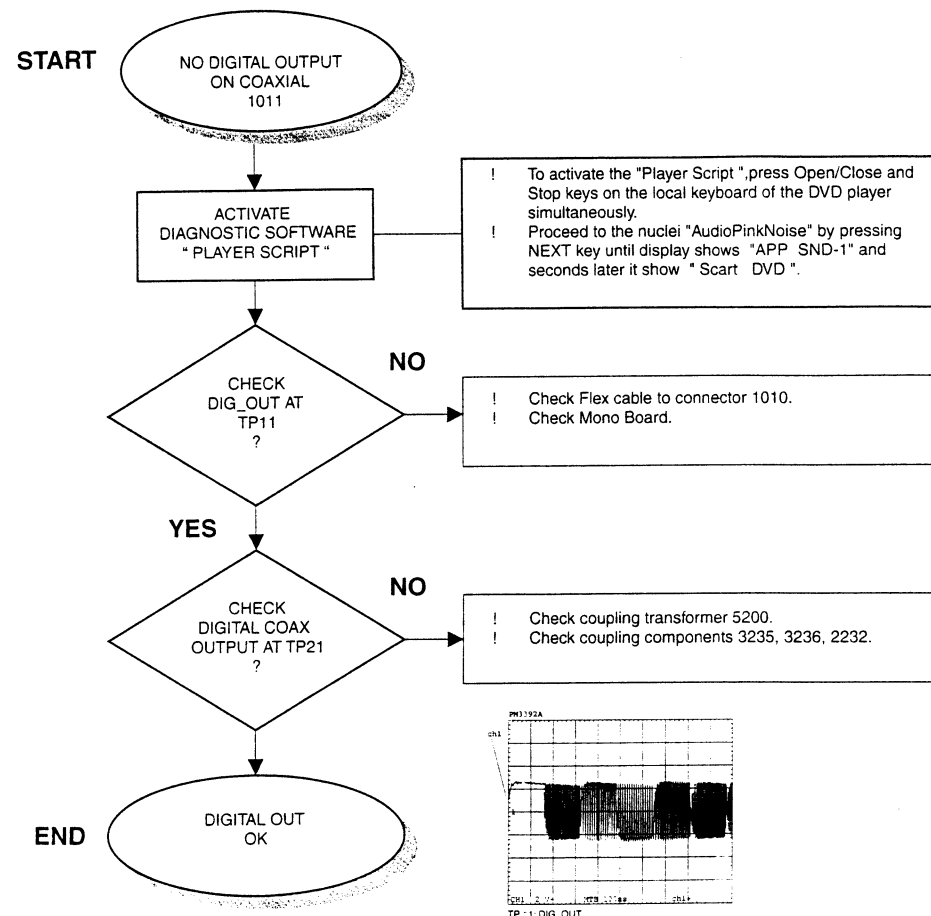
## AUDIO PART OF AUDIO/VIDEO BOARD 3139 243 30241



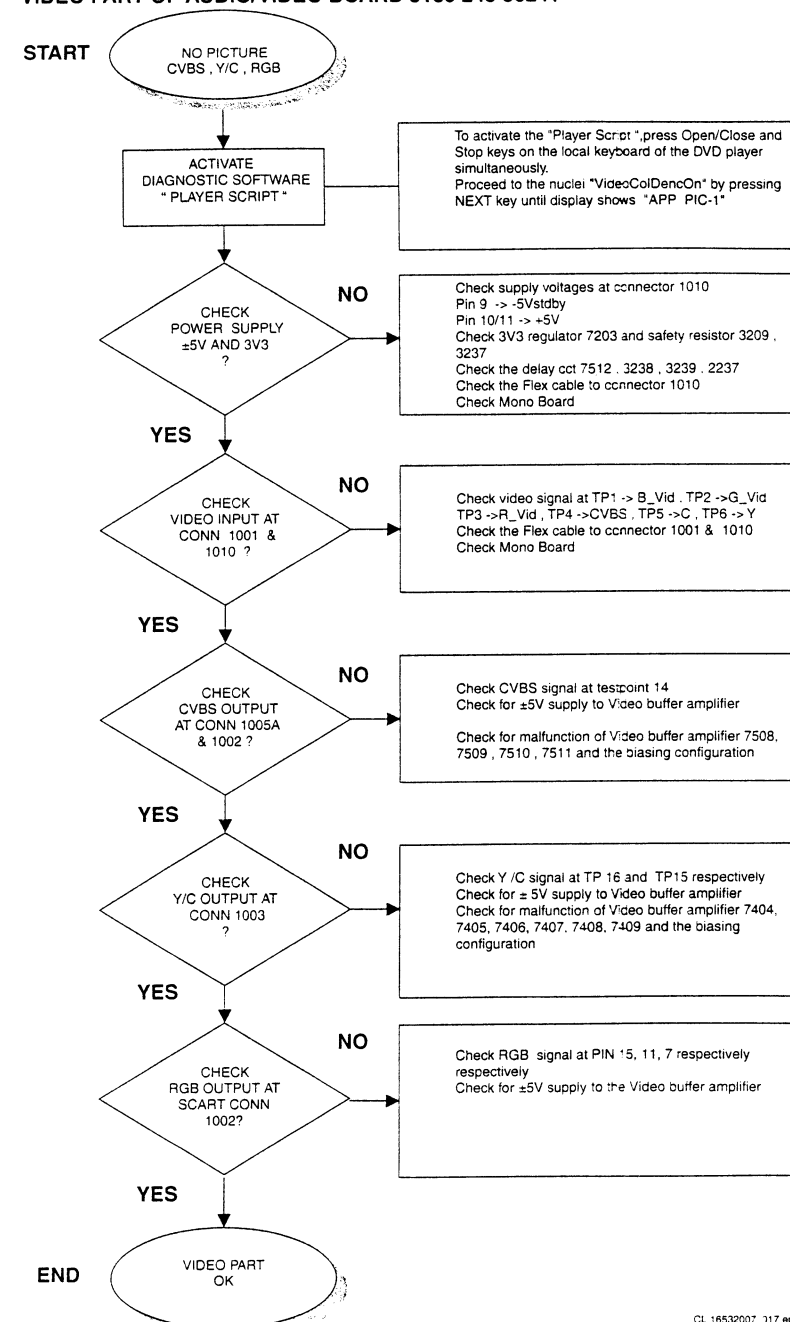
## AUDIO WAVEFORM MEASUREMENT



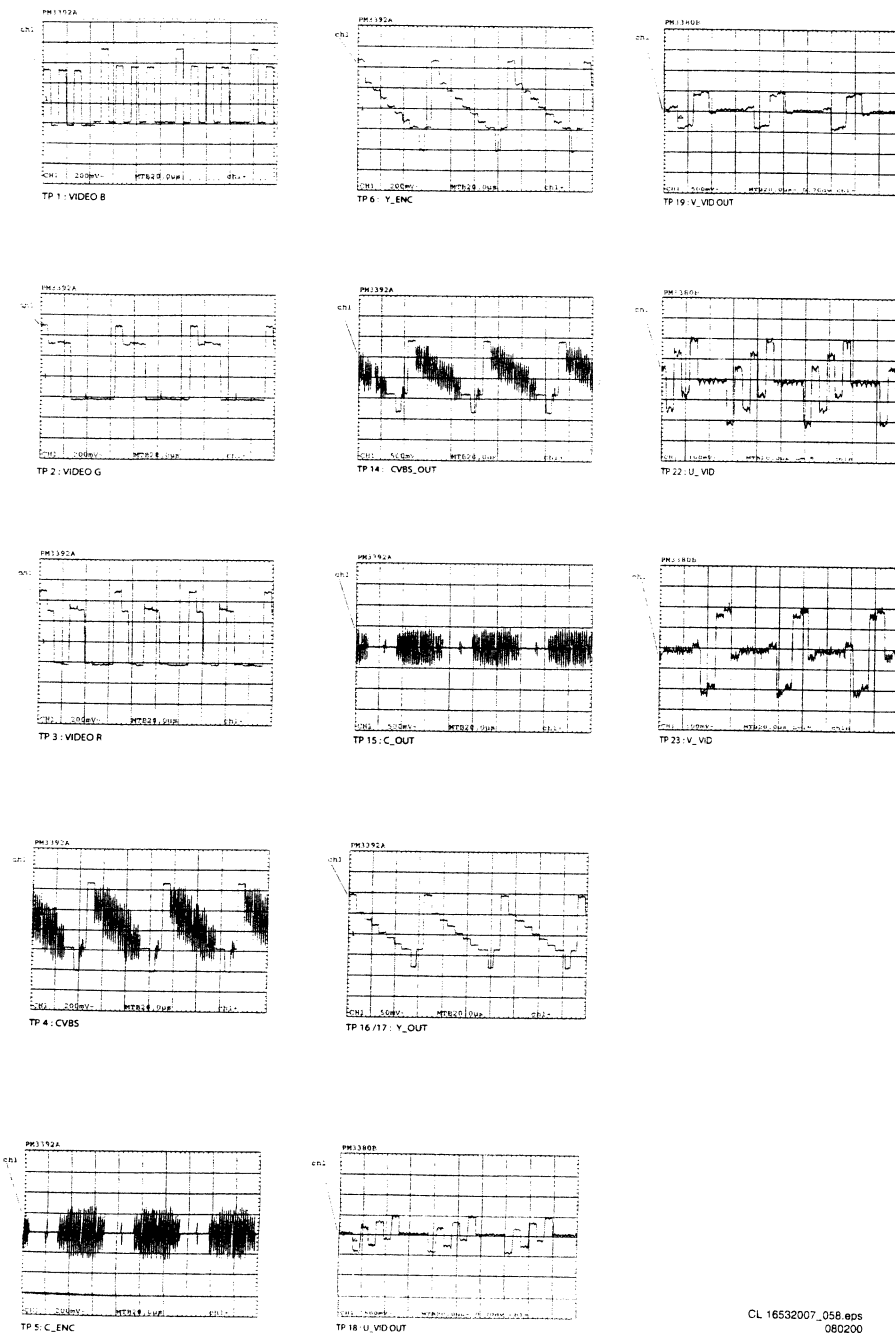
## AUDIO PART OF AUDIO/VIDEO BOARD 3139 243 30241

CL 16532007\_014.eps  
130201

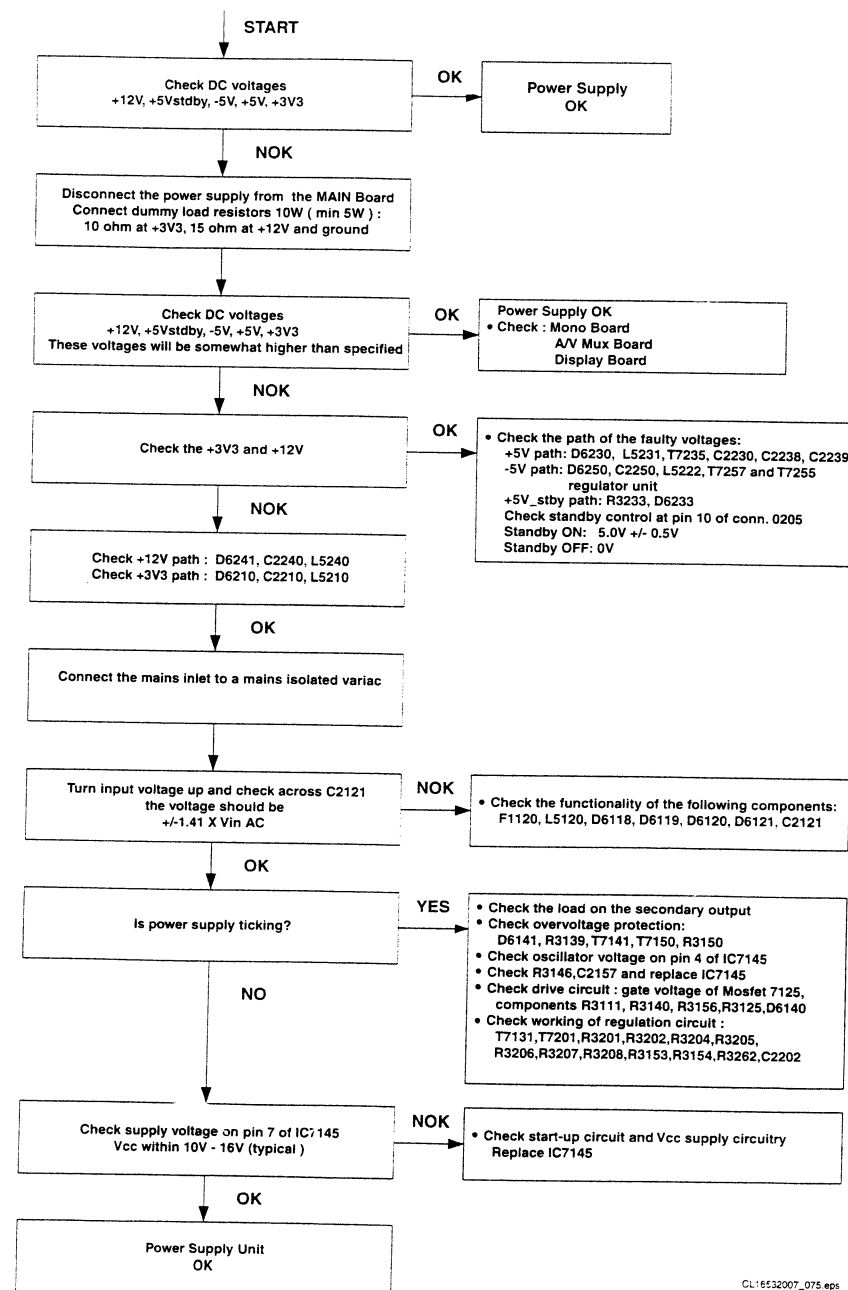
## VIDEO PART OF AUDIO/VIDEO BOARD 3139 243 30241

CL 16532007\_317.eps  
190401

## VIDEO WAVEFORM MEASUREMENT



## TROUBLESHOOTING POWER SUPPLY UNIT VFM EURO



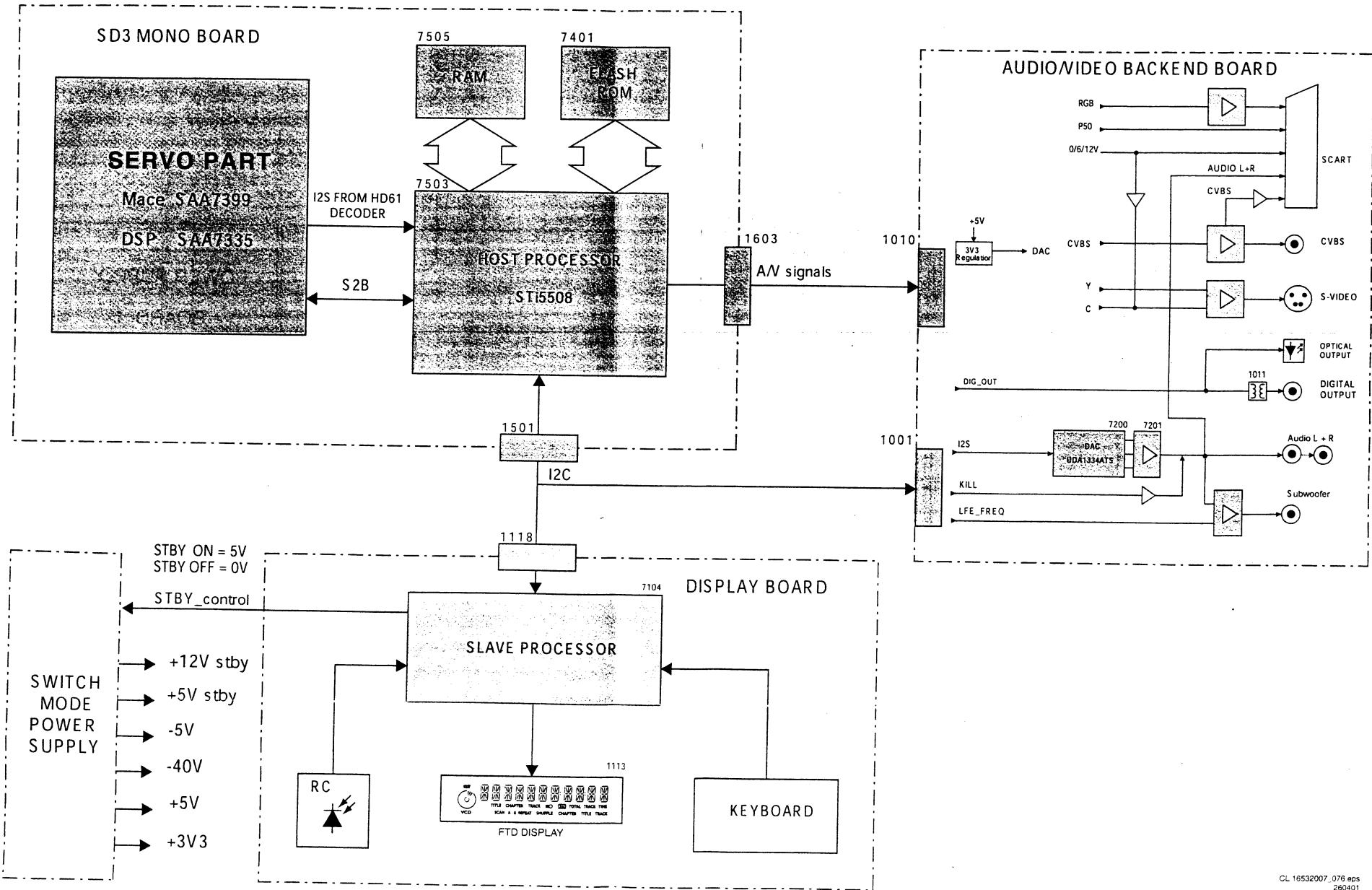


Personal

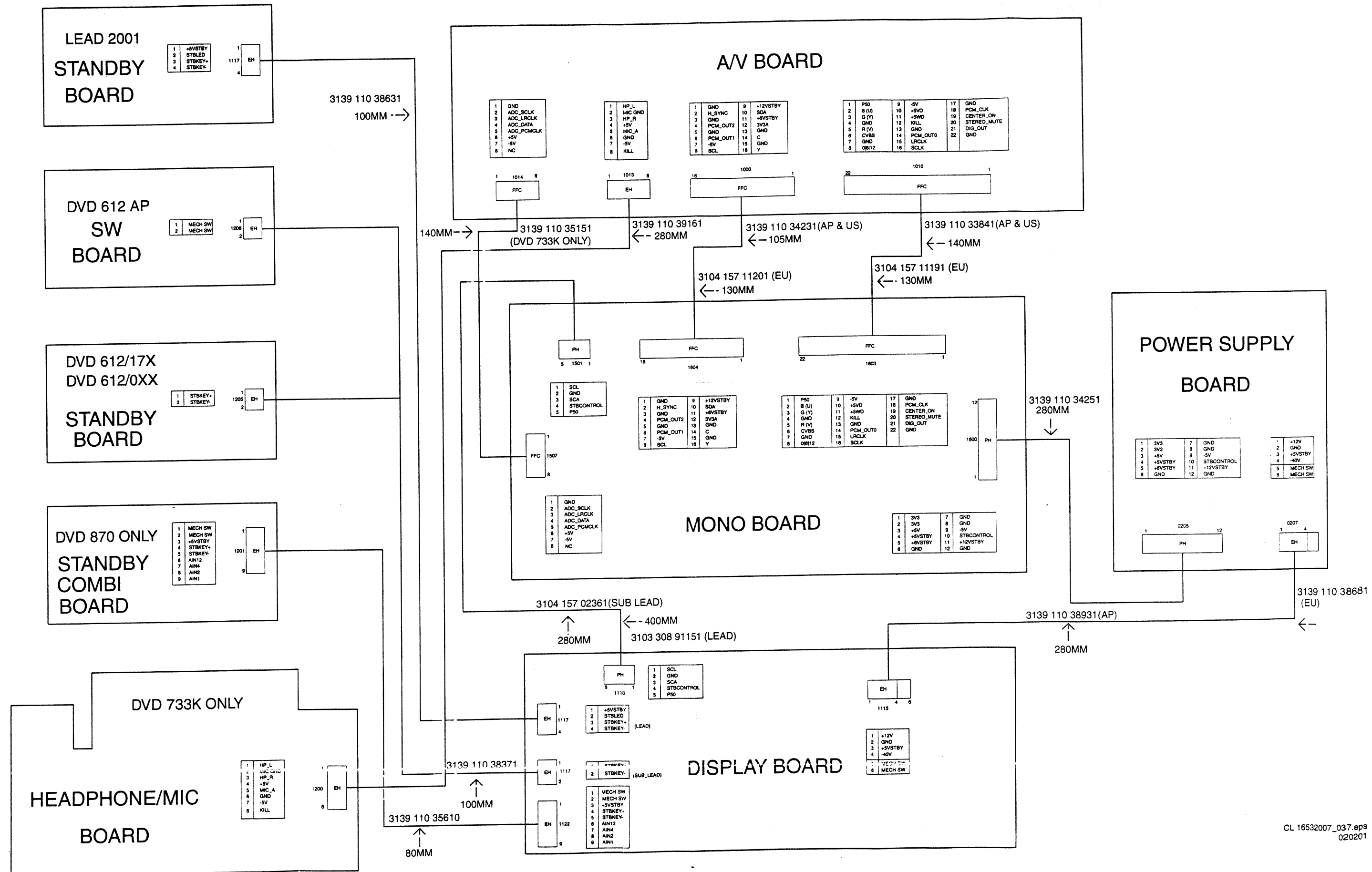
6. Block And Wiring Diagram.

Blockdiagram DVD 712-722

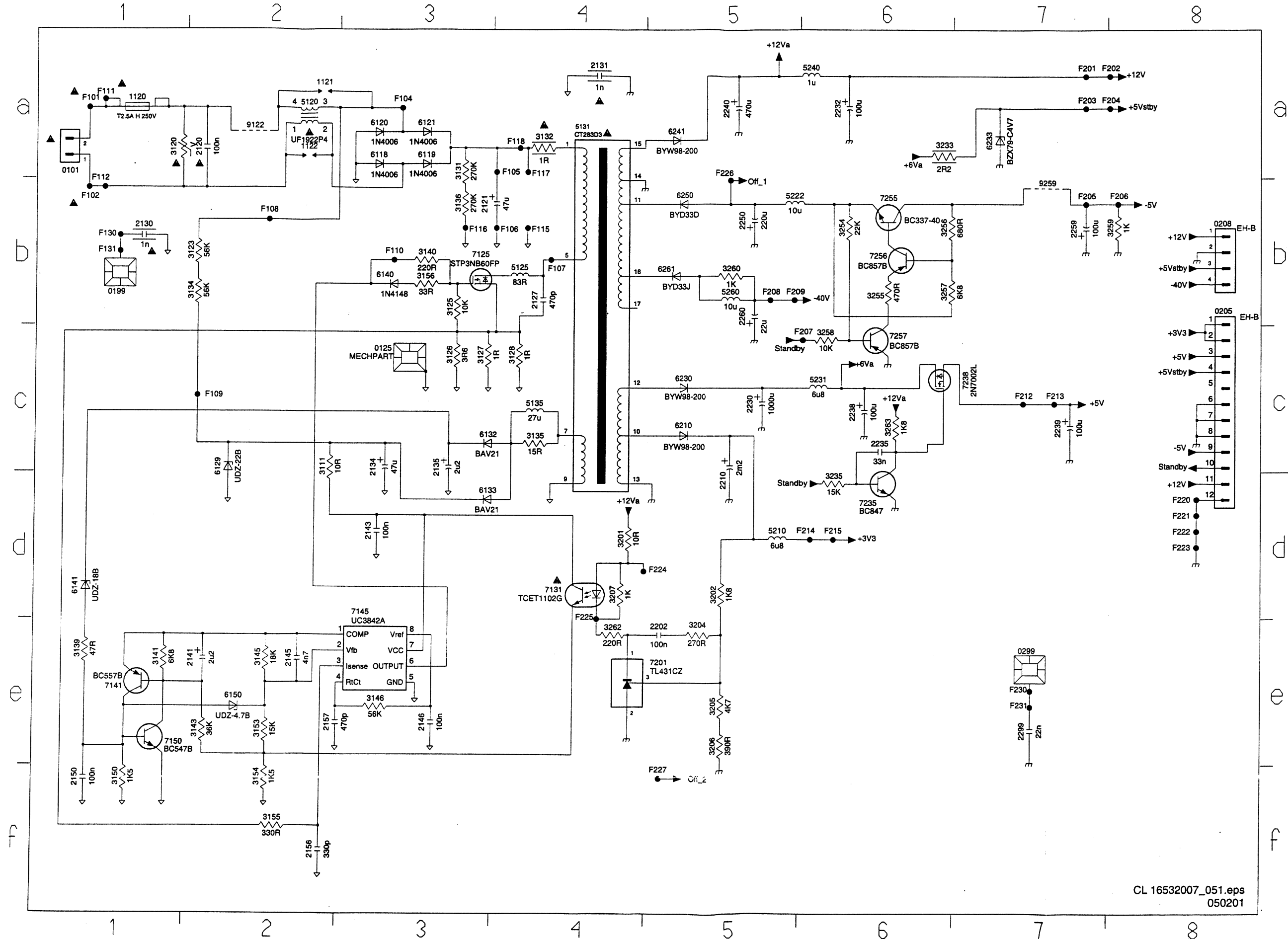
Block Diagram DVD712-722/0X1



## Wiring Diagram

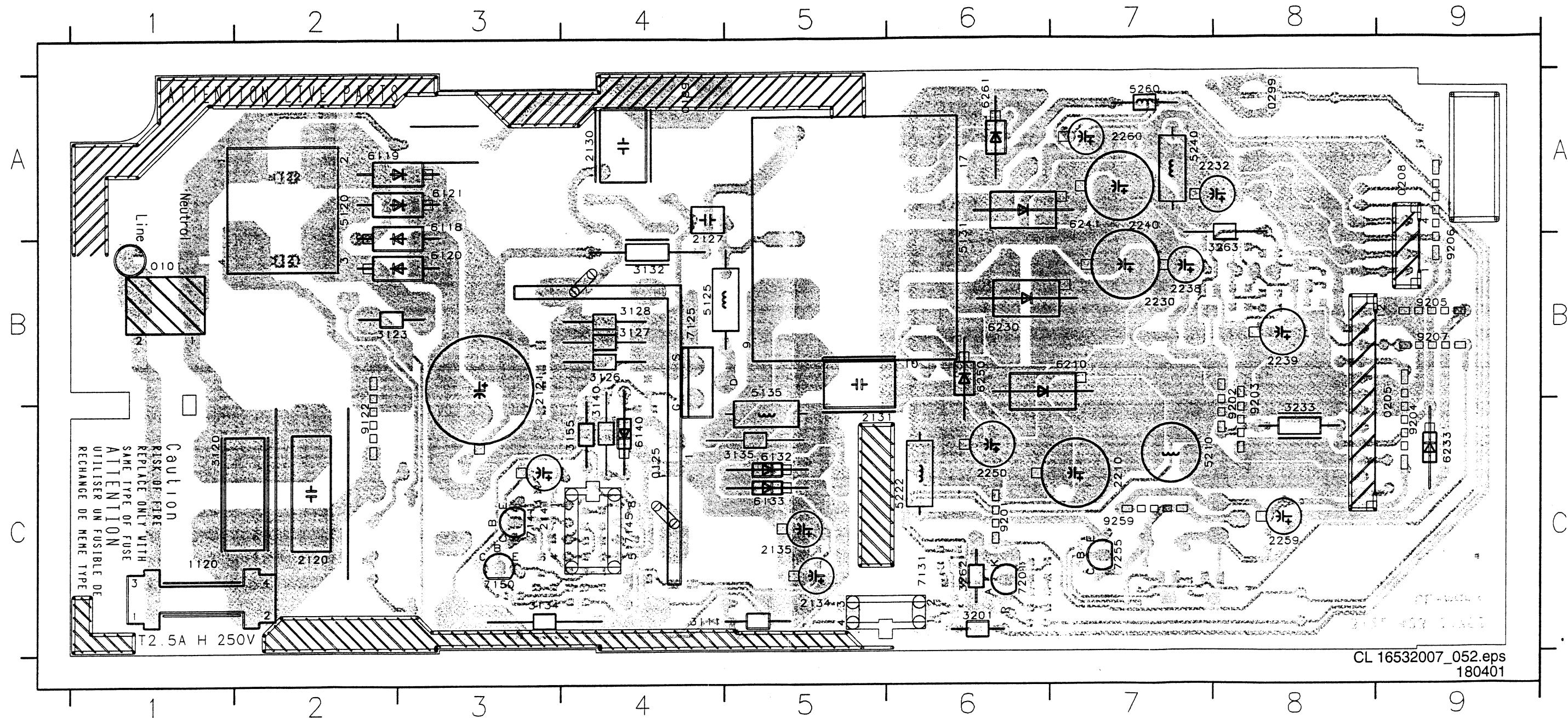


## 7. Electrical Diagrams And Print-Layouts

**Power Supply Unit VFM EURO (3122 427 22570)**

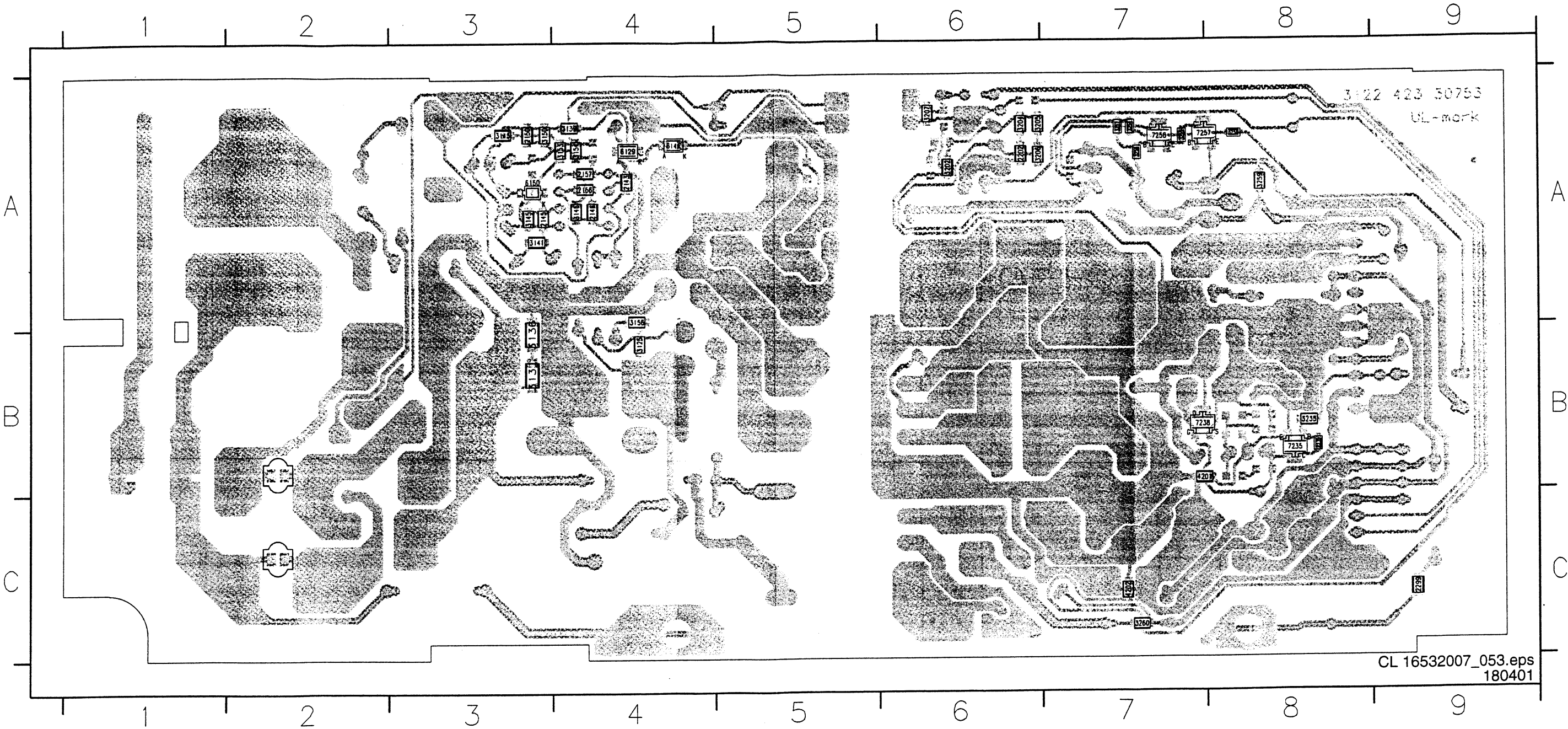
## Layout Power Supply Unit VFM EURO (component side)

0101 B1 0209 A9 2121 B3 2130 A4 2135 C5 2232 A8 2240 A7 2259 C8 3111 C4 3123 B2 3133 A3 3201 C6 5120 A2 5210 C7 5260 A7 6120 B3 6128 A4 6211 C6 6241 A7 7125 B4 7201 C6 7259 C8 9203 B8 9259 C7  
0125 C4 0299 A8 2122 C2 2131 C5 2141 C3 2233 A8 2241 A6 2260 A7 3112 C5 3126 B4 3134 C3 3232 B8 5121 B2 5222 C6 6110 C3 6121 A3 6132 C5 6230 B6 6250 B6 7131 C6 7233 A8 9122 C2 9204 C9  
0199 A4 1120 C1 2123 B3 2132 C5 2210 C7 2236 B6 2250 C6 2261 A7 3120 C1 3127 B4 3135 C5 3233 C8 5125 B4 5230 B7 6111 C3 6122 C3 6133 C5 6231 B6 6259 C7 7141 C3 7236 B7 9125 B4 9205 B9  
0205 C9 2119 B2 2127 B4 2133 C5 2211 B7 2238 B7 2251 B6 2263 A6 3121 C3 3128 B4 3140 B4 3262 C6 5131 B6 5231 B7 6118 A3 6123 B3 6140 C4 6233 C9 6260 A6 7145 C4 7237 B8 9201 C6 9206 B9  
0208 A9 2120 C2 2129 C4 2134 C5 2230 B7 2239 B8 2253 C7 3105 C1 3122 B2 3132 B4 3155 C4 3263 B8 5135 B5 5240 A7 6119 A2 6127 A4 6210 B7 6240 B6 6261 A6 7150 C3 7255 C7 9202 C8 9207 B9



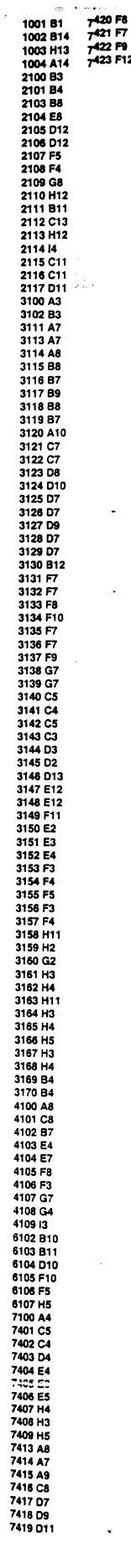
Layout Power Supply Unit VFM EURO (bottom side)

2142	A3	2146	A4	2156	A4	2202	A6	2235	B8	3125	B4	3137	A5	3143	A3	3150	A3	3156	A4	3204	A6	3207	A6	3235	B8	3241	B8	3255	A7	3258	A8	4201	B7	6141	A4	7238	B7
2143	A4	2150	A3	2157	A4	2203	A6	2262	B8	3131	B3	3139	A4	3145	A3	3153	A4	3202	A6	3205	A6	3208	A6	3236	B8	3253	A7	3256	A7	3259	A8	4202	C7	6150	A3	7256	A7
2145	A3	2152	A4	2201	A6	2234	B8	2299	C9	3136	B3	3141	A3	3146	A4	3154	A4	3203	A6	3206	A6	3234	B8	3237	B8	3254	A7	3257	A7	3260	C7	6129	A4	7235	B8	7257	A7

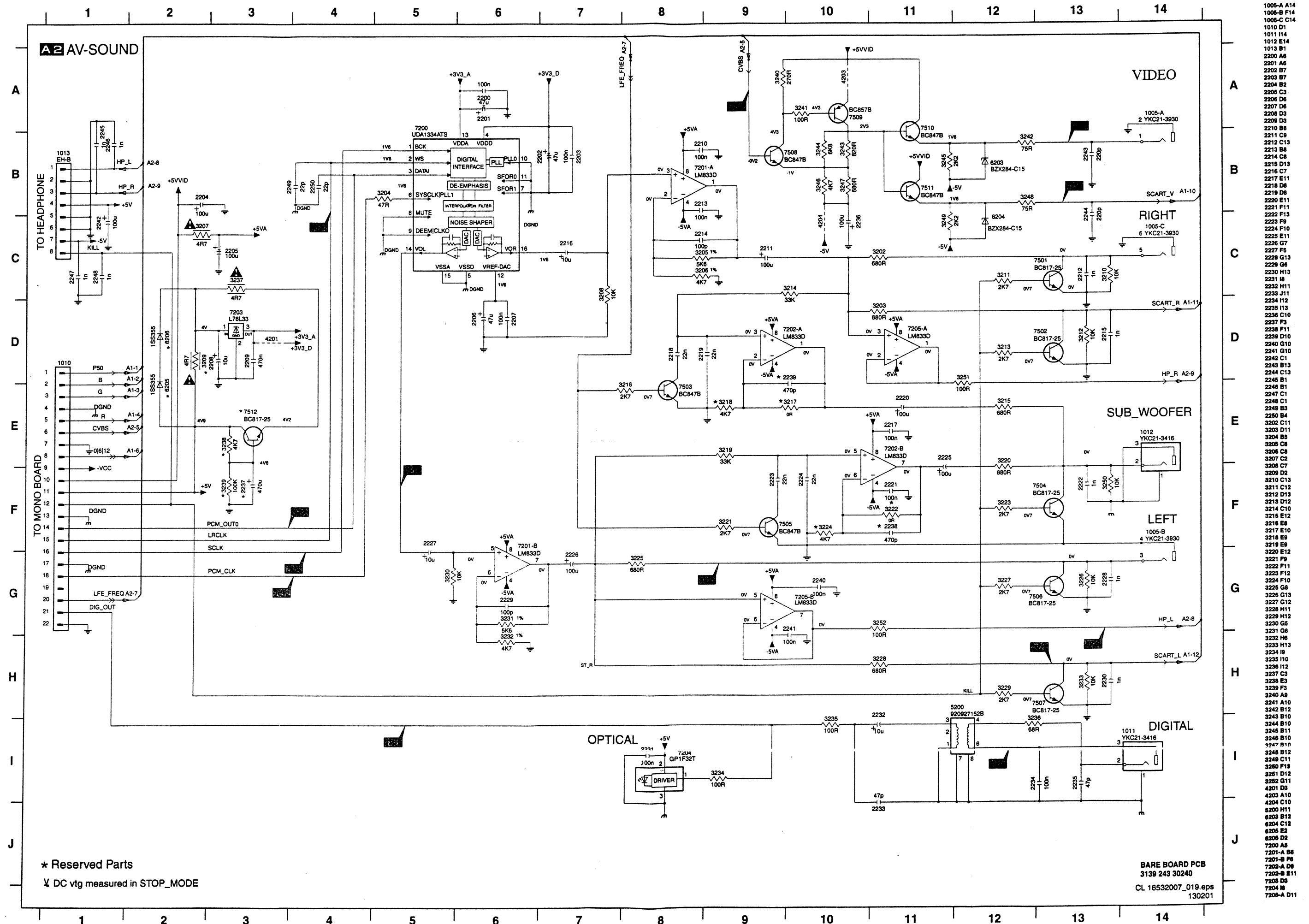




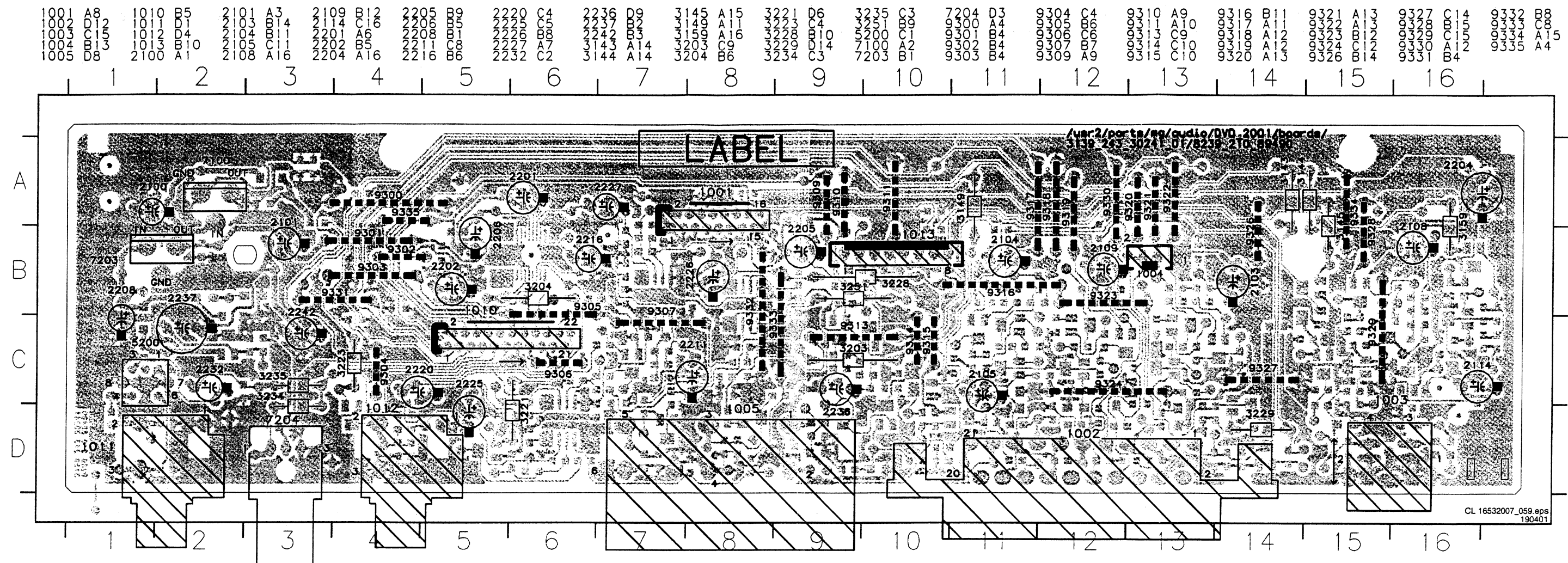
## A1 AV\_VIDEO



## A/V Board (Sound)

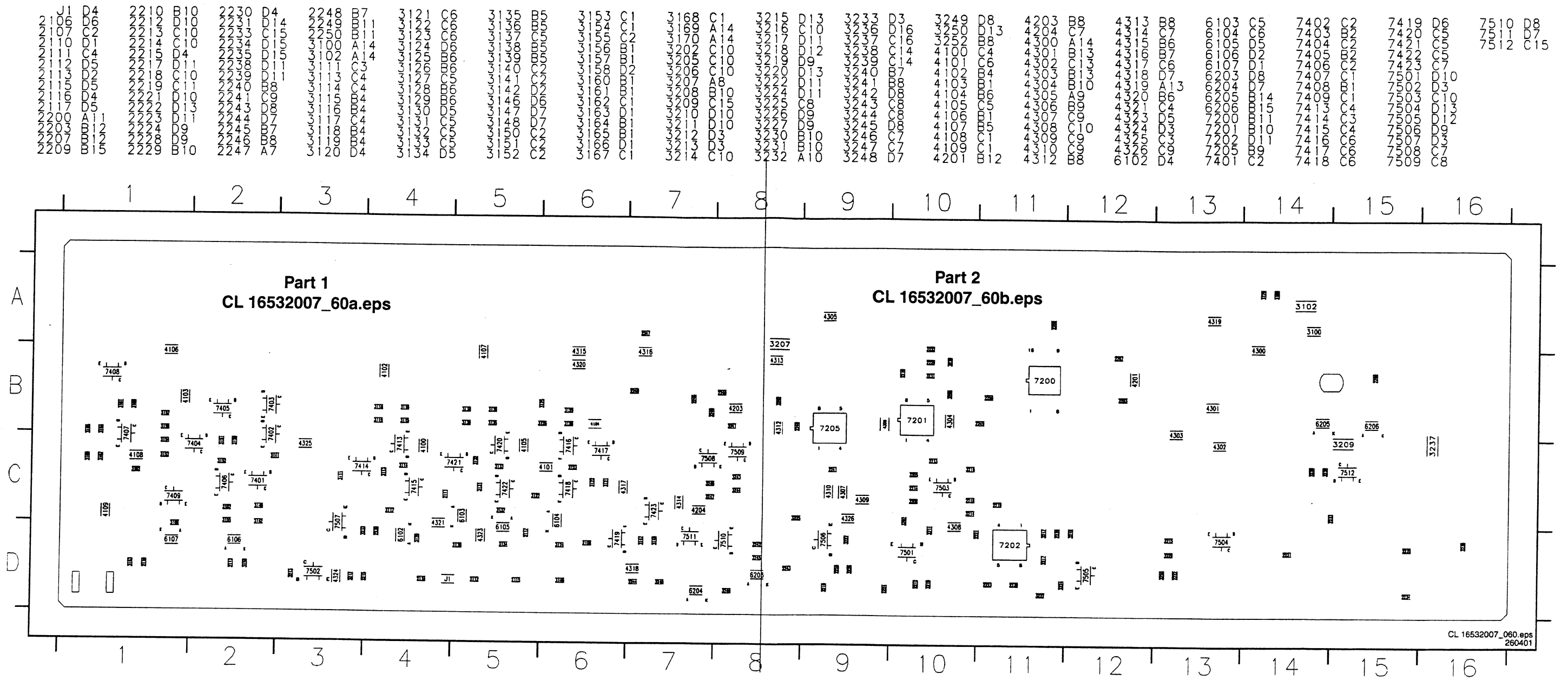


## Layout A/V Board (Component Side)





## A/V Board (Overview Bottom Side)



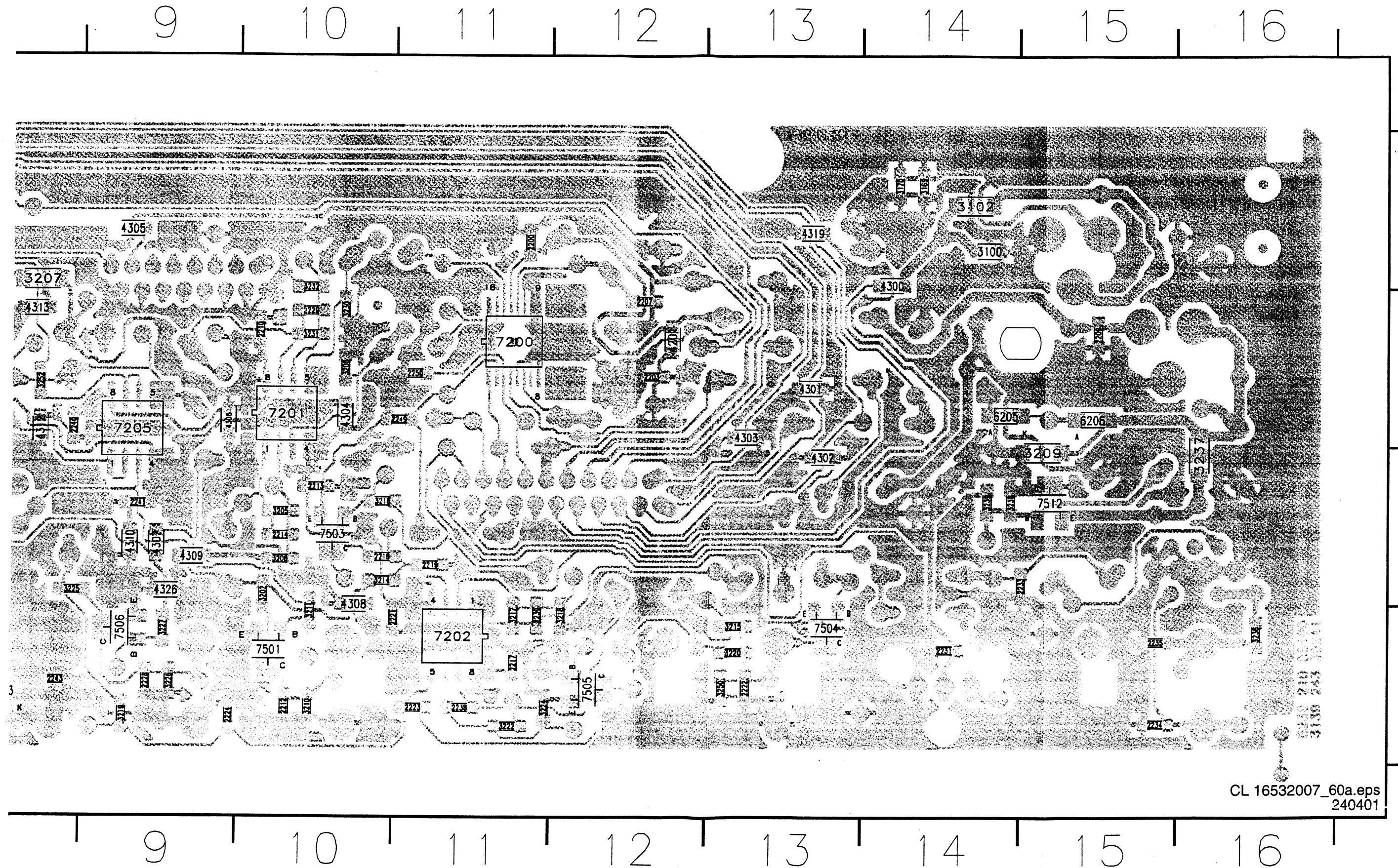
1 2 3 4 5 6 7 8

1 2 3 4 5 6 7 8

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24040



## AV Board (Part 2 Bottom Side)



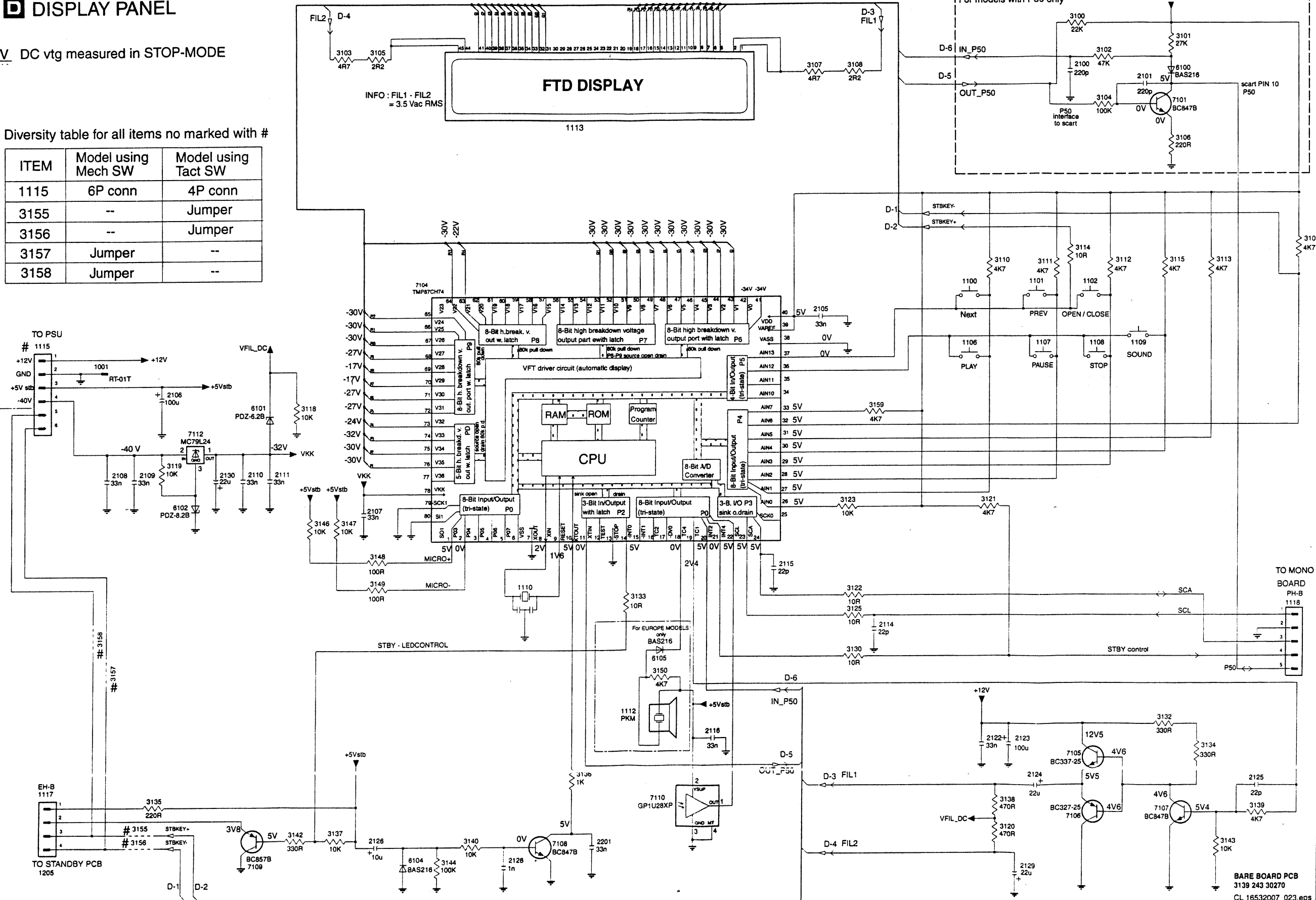
Display Board

DISPLAY PANEL

V DC vtg measured in STOP-MODE

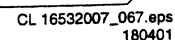
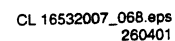
Diversity table for all items no marked with #

ITEM	Model using Mech SW	Model using Tact SW
1115	6P conn	4P conn
3155	--	Jumper
3156	--	Jumper
3157	Jumper	--
3158	Jumper	--



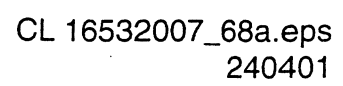
- 1001 D2
- 1000 C11
- 1101 C12
- 1102 C12
- 1106 D11
- 1107 D12
- 1108 D12
- 1109 D13
- 1110 G6
- 1112 H7
- 1113 A7
- 1115 D1
- 1117 I1
- 1118 G14
- 2100 A12
- 2101 A13
- 2105 D9
- 2106 D2
- 2107 F4
- 2108 E2
- 2109 E2
- 2110 E3
- 2111 E4
- 2114 G10
- 2115 F9
- 2116 H8
- 2122 H11
- 2123 H11
- 2124 I12
- 2125 I14
- 2126 I5
- 2129 I11
- 2130 E3
- 2201 I7
- 3100 A12
- 3101 A13
- 3102 A12
- 3103 A4
- 3104 A12
- 3105 A5
- 3106 B13
- 3107 A9
- 3108 A10
- 3109 C14
- 3110 C11
- 3111 C12
- 3112 C12
- 3113 C14
- 3114 C12
- 3115 C13
- 3118 E4
- 3119 E2
- 3120 I11
- 3121 F11
- 3122 G10
- 3123 F10
- 3125 G10
- 3130 G10
- 3132 H13
- 3133 G7
- 3134 H13
- 3135 I2
- 3136 H7
- 3137 I4
- 3138 I11
- 3139 I14
- 3140 I6
- 3142 I4
- 3143 I14
- 3144 I5
- 3146 F4
- 3147 F4
- 3148 F5
- 3149 F5
- 3150 G8
- 3155 I2
- 3156 I2
- 3157 G2
- 3158 G2
- 3159 E10
- 6100 A13
- 6101 E3
- 6102 F2
- 6104 I5
- 6105 G8
- 7101 A13
- 7104 C5
- 7105 H12
- 7106 I12
- 7107 I13
- 7108 I6
- 7109 I3
- 7110 I8
- 7112 E3
- 7112 D5
- 7103 D5
- 7108 A5
- 7109 A9
- 7119 C7
- 7120 C7
- 7121 C7
- 7122 C8
- 7123 C8
- 7124 C8
- 7125 C5
- 7129 C7
- 7130 C7
- 7131 C7
- 7132 C8
- 7133 C8
- 7137 D5
- 7138 D5
- 7139 D5
- 7140 H8
- 7141 D5
- 7142 D9
- F143 A12
- F144 A12
- F145 G8
- F146 D3
- F147 E3
- F148 D1
- F149 D5
- F150 E5
- F151 E5
- F152 E9
- F153 C3
- F154 E5
- F155 E9
- F156 E5
- F157 E9
- F158 E5
- F159 E9
- F160 E9
- F161 E9
- F162 I6
- F163 I7
- F164 H6
- F165 A13
- F166 A13
- F167 B13
- F168 F1
- F169 F1
- F184 I1
- F186 E9
- F203 D2
- F205 E1
- F208 G13
- F209 G13
- F210 G13
- F228 D1
- F233 D9
- F234 I1
- F235 I1
- F241 G14
- F242 G14

1001 A1	1101 A9	1106 A9	1108 A9	1110 A7	1113 A4	1117 A1	2106 A9	2124 A9	2129 A2	7105 A9	7110 A2	9201 A1
1000 A9	1102 A8	1107 A8	1109 A8	1112 A9	1115 A8	1118 A1	2123 A9	2126 A1	2130 A6	7106 A9	7112 A6	9202 A8

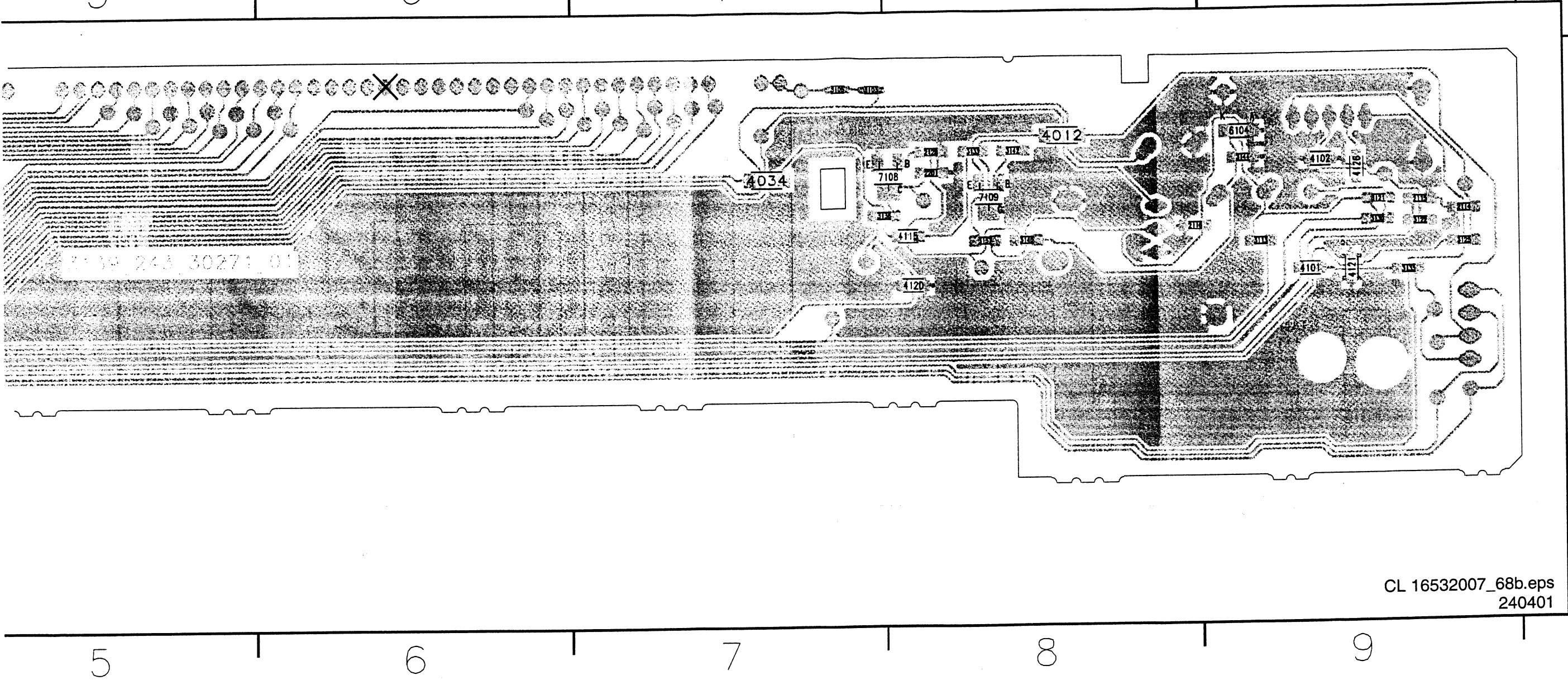
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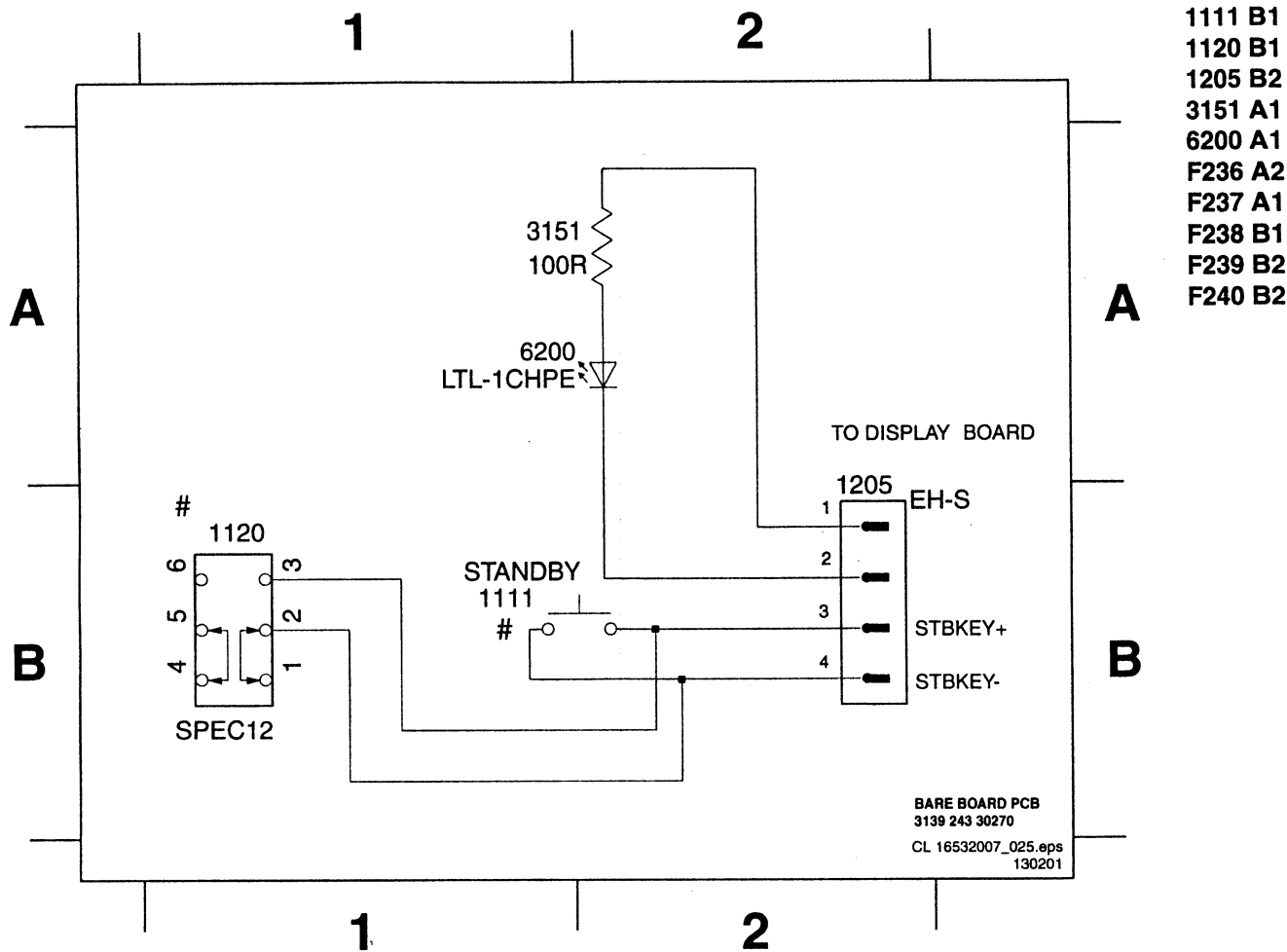
## 4



Layout Display Board (Part 2 Bottom Side)



Bare Board Standby

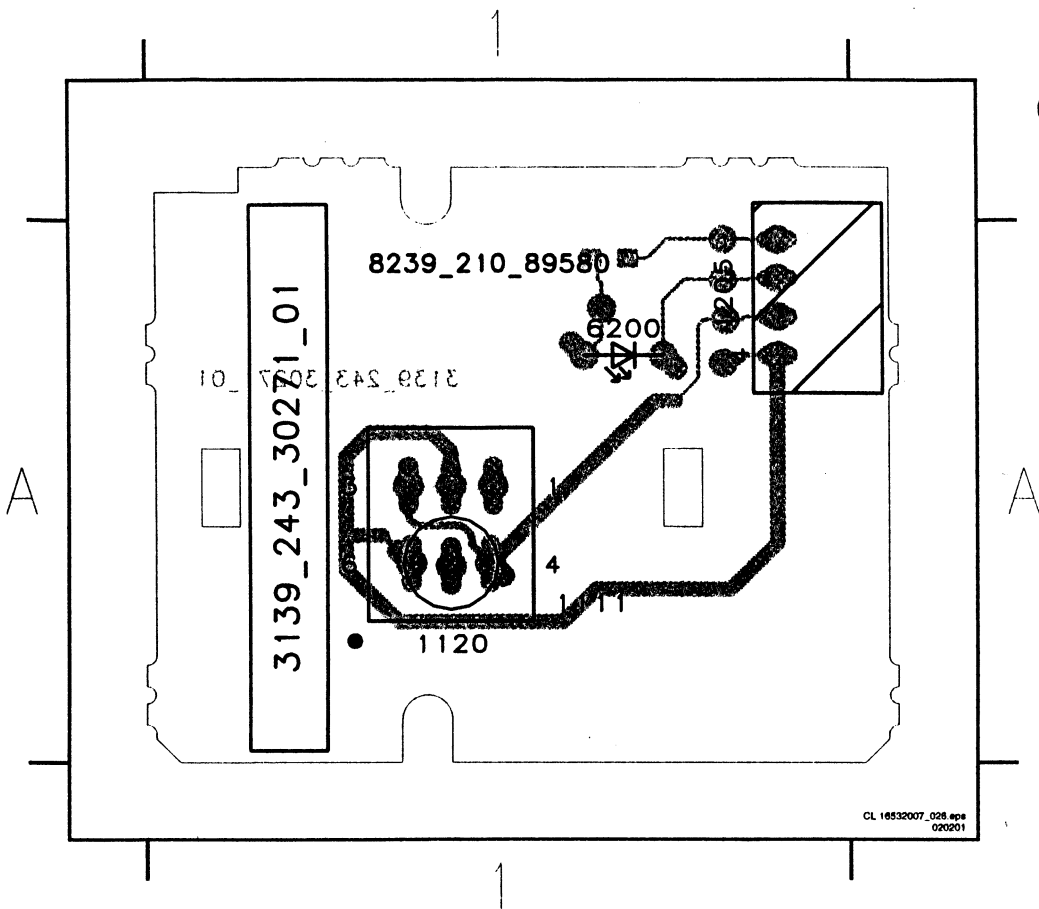


DIVERSITY

#	MODEL USING MECH SWITCH SW	MODEL USING TACT SWITCH SW
1120	YES	
1111		YES

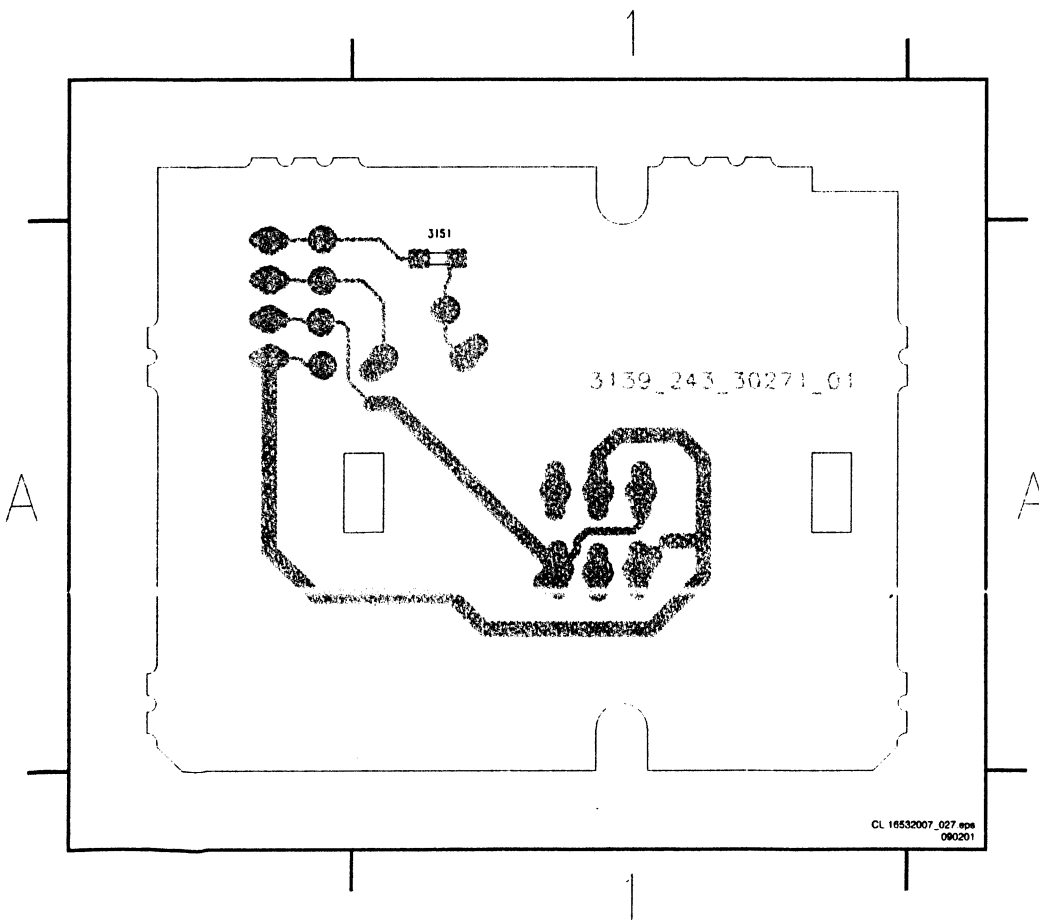


Layout Bare Board Standby (Component side)



1111 A1  
1120 A1  
1205 A1  
6200 A1

Layout Bare Board Standby (Component side)



3151 A1

## 8. Alignments

No electrical alignments available

## 9. Circuit Descriptions And List Of Abbreviations

### 9.1 Current Mode Power Supply

#### 9.1.1 Introduction

The switch mode power supply ( SMPS ) is mains isolated. The control IC 7145 ( UC 3842A ) produces pulses to drive the power switch, Mosfet 7125. Power supply regulation is achieved by using duty cycle control at fix frequency ,of approximately 58KHz ,determined by the RC timing components.

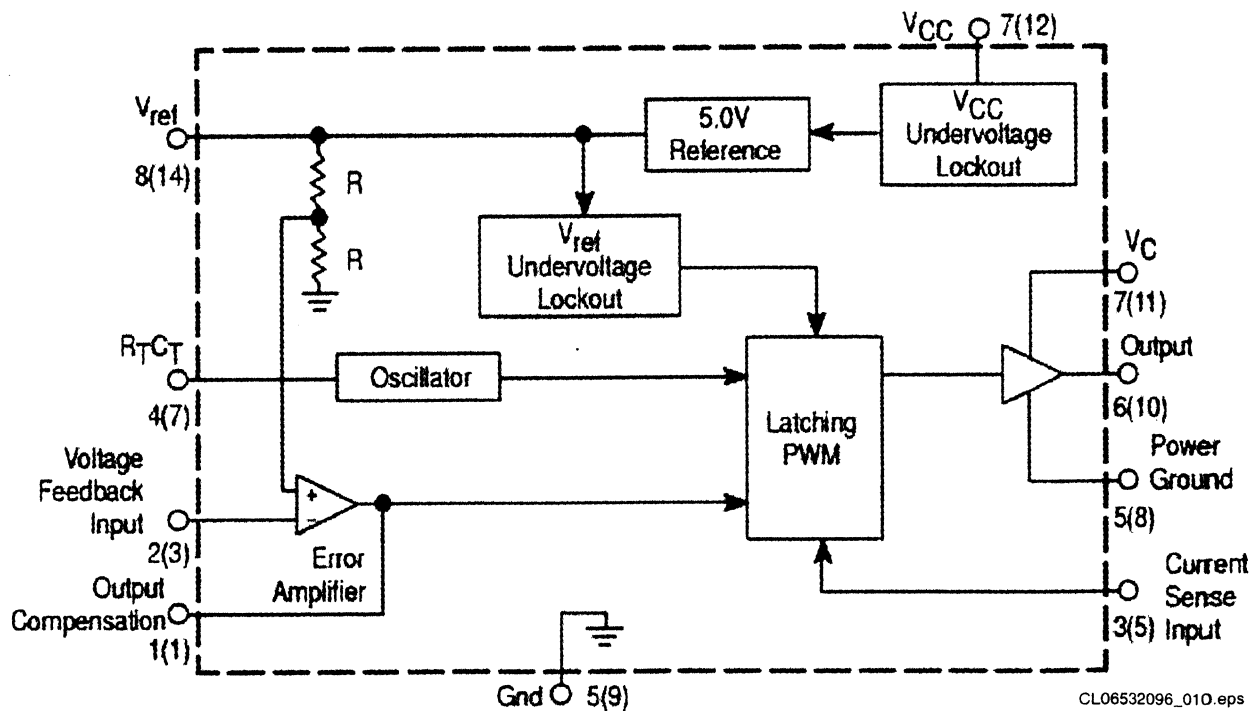
DC-to-DC converter application. This integrated circuit feature a trimmed oscillator for precise duty cycle control, a temperature compensated reference, high gain error amplifier, current sensing comparator and a high current totem pole output ideally suited for driving a power MOSFET. Also included are protective features consisting of input and reference undervoltage lockouts each with hysteresis, cycle by cycle current limiting, programmable output deadtime and a latch for single pulse metering.

A representative Block diagram and Pin function description is shown in Fig 9-1 and Fig 9-2 respectively.

#### 9.1.2 General Description Of UC 3842A

The UC 3842 is a high performance fixed frequency current mode controller that is specifically designed for off-line and

#### 9.1.3 Block Diagram



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Figure 9-1

## 9.1.4 Pin Function Description

Pin		Function	Description
8-Pin	14-Pin		
1	1	Compensation	This pin is Error Amplifier output and is made available for loop compensation.
2	3	Voltage Feedback	This is the inverting input of the Error Amplifier. It is normally connected to the switching power supply output through a resistor divider.
3	5	Current Sense	A voltage proportional to inductor current is connected to this input. The PWM uses this information to terminate the output switch conduction.
4	7	$R_T/C_T$	The Oscillator frequency and maximum Output duty cycle are programmed by connecting resistor $R_T$ to $V_{ref}$ and capacitor $C_T$ to ground. Operation to 500 kHz is possible.
5	–	Gnd	This pin is the combined control circuitry and power ground (8-pin package only).
6	10	Output	This output directly drives the gate of a power MOSFET. Peak currents up to 1.0 A are sourced and sunk by this pin.
7	12	$V_{CC}$	This pin is the positive supply of the control IC.
8	14	$V_{ref}$	This is the reference output. It provides charging current for capacitor $C_T$ through resistor $R_T$ .
–	8	Power Ground	This pin is a separate power ground return (14-pin package only) that is connected back to the power source. It is used to reduce the effects of switching transient noise on the control circuitry.
–	11	$V_C$	The Output high state ( $V_{OH}$ ) is set by the voltage applied to this pin (14-pin package only). With a separate power source connection, it can reduce the effects of switching transient noise on the control circuitry.
–	9	Gnd	This pin is the control circuitry ground return (14-pin package only) and is connected back to the power source ground.
–	2,4,6,13	NC	No connection (14-pin package only). These pins are not internally connected.

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Figure 9-2

## 9.1.5 Pin Connection

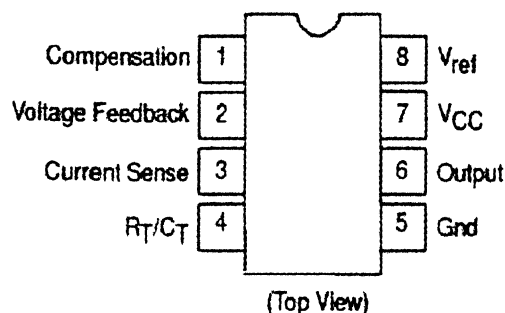
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060700

Figure 9-3

## 9.1.6 Output Voltages

- +12V ( For Display board, Monoboard, A/V board ) created via D6241, C2240, L5240, C2232 (This voltage is also present during standby)
- +5V<sub>stdby</sub> ( For Display board, Standby PCB, Monoboard ) created from +6V via R3233 and D6233 (This voltage is also present during standby)
- +6V<sub>stdby</sub> ( Reserve ) created from D6230, C2230, L5231 (This voltage is also present during standby)
- +5V ( For Monoboard, A/V board ) derive from +6V stdby via Mosfet 7238, C2239 and it will be switch off via R3235, T7235 during Standby.
- 5V ( For Monoboard, A/V board ) created from D6250, C2250, C2259, L5222, R3259, T7255 regulator circuit and will switch off via R3258, T7257 during standby (control signal Standby is HIGH)

- 3V3 ( For Monoboard, A/V board ) The 3V3 power supply is regulated by the control loop comprising of 7201, 7131 and 7145 of the switch mode PSU. This voltage is also present during standby
- 40V ( For Display board ) created via D6261, R3260, L5260, C2260 This will not be present during standby

## 9.2 Control Circuitry

## 9.2.1 Mains Input Circuit

The mains voltage is rectified by bridge rectifier (D6118 to D6121) and filter by C2121. The DC voltage across C2121 is the DC input voltage, approximately 300V, is the DC input to pin 1 of transformer T5131. The mains input also consists of a lighting protection R3120.

## 9.2.2 Start-Up And Takeover Circuitry

The start-up circuitry consist R3123, R3134, R3111, D6129, C2134 and with the mains voltage input, the C2134 will charge via R3123 and R3134. When the voltage at pin 7 of IC7145 reaches the start-up threshold of min 14.5V, IC7145 will start-up and the control circuit start to operate. After start-up, the max sinking current of 17mA is required by IC7145 which is not able to be delivered by the start-up circuitry, so the takeover circuitry must be present. If the takeover circuit does not occurred, the supply voltage at pin 7 will decrease gradually till it reaches the IC7145 minimal operating voltage of 8.5V and the IC will switch off. The whole operation cycle will repeat itself with audible hiccup sound if takeover is not present.

The takeover circuit comprises of D6133, R3135, L5135, C2134. During the control circuit start-up, the voltage across winding pin 7 and 9 will gradually built up and charged C2134

via D6133, R3135 which will takeover the supply voltage of T7145 at pin 7.

it goes into the overvoltage protection and a complete restart sequence is required.

### 9.2.3 Secondary Voltage Sensing

The secondary voltage regulating circuit comprise of the opto-coupler 7131 which isolate the error signal from the control IC7145 ,on the primary side, and a reference component 7201 ( TL431 ). The 7201 can be represented by two components:

- A very stable and accurate reference diode
- A high gain amplifier

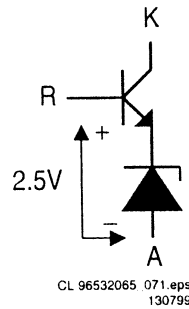


Figure 9-4

When the output voltage increases, due to a reduction in the load, the voltage across R3205 and R3206 increases to above the internal reference voltage of about 2.5V then TL431 conduct. The current through the opto-coupler 7131 will increase due to the fact that the series resistor in 7201 decreases. This result in a increase of voltage to pin 2 of IC7145, thus reducing the on-time of FET 7125. In the event of a decrease in output voltage (increase in load ),the control circuit will operate in the opposite way to the explanation above.

### 9.2.4 Primary Current Sensing

The current through the FET 7125 resulting in a voltage drop across R3126,R3127,R3128 which is couple to pin 3 of IC7145,current sense input.The higher the input voltage, the more the primary current is limited. In this way the maximum output power of the power supply is limited.

### 9.2.5 Undervoltage Protection

Two undervoltage lockout comparators have been incorporated to guarantee that the IC7145 is fully functional before the output stage is enable. The supply voltage at pin 7 and reference voltage at pin 8 of IC7145 are each monitored by separate comparators with built-in hysteresis. If the supply voltage at pin 7 of IC7145 drops below 10V ( typical ), due to a secondary voltage is short-circuit or excessive load, the drive pulse at pin 6 of IC7145 will be disabled and the controller will switch off the complete SMPS.

Remarks : In the event of the overvoltage situation remaining present, the SMPS will go in sequence of protection,start- up cycle, protection and the cycle repeats. This effect is highly audible.

### 9.2.6 Overvoltage Protection

The overvoltage circuitry comprising of D6141,R3139, R3150, R3141,T7141, T7150 which is used to detect an over voltage situation on the secondary side of the transformer. After start-up, when the voltage across C2135 exceeds 18V,the overvoltage circuit will trigger the internal latch circuit, pin 1 of IC7145 and the output buffer is disabled and

### 9.3 List Of Abbreviations

B	Buffered Video input Blue from DVD monoboard
BC_AUX	Blue or Chroma input from AUX-scart
BC_TV	Blue or Chroma output to TV-scart
C_ENC	Buffered Chroma input from DVD monoboard
CVBS	Buffered Composite video input from DVD monoboard
DC_OFF	Control signal to switch off $\bar{u}8V_{stby}$ and +12V <sub>stby</sub> during standby
DIG_OUT	Digital out
FBIN_AUX	Fast blanking input from AUX-scart
FBOU_TV	Fast blanking output to TV-scart
G	Buffered Video input Green from DVD monoboard
GIN_AUX	Video input Green from AUX-scart
GOUT_TV	Video output Green to TV-scart
HP_L	Audio output left to headphone and audio scart switch TEA6420
HP_R	Audio output right to headphone and audio scart switch TEA6420
KILL	Kill control signal for audio outputs and for soft mute of DAC
LIN_AUX	Audio input left from AUX-scart
LIN_TV	Audio input left from TV-scart
LOUT_AUX	Audio output left to AUX-scart
LOUT_TV	Audio output left to TV-scart
LRCLK	Left/Right clock
PCM_CLK	Audio system clock for DAC
PCM_OUT0	Audio serial output data
R	Buffered Video input Red from DVD monoboard
RCIN_TV	Red or Chroma input from TV-scart
RCOUT_TV	Red or Chroma output to TV-scart
RIN_AUX	Audio input right from AUX-scart
RIN_TV	Audio input right from TV-scart
ROUT_AUX	Audio output right to AUX-scart
ROUT_TV	Audio output right to TV-scart
SCL	I2C bus clock
SCLK	Audio serial bit clock
SDA	I2C bus data
SELECT	Control signal for video scart switches; high = TV ,low = AUX
SELECT_HIGH	Control signal for switching fast blanking and slow blanking signals; high = TV ,low = AUX
SLB_AUX	Slow blanking control signal from AUX-scart
SLB_TV	Slow blanking control signal to TV-scart
STANDBY	Control signal from STI5505 used to switch off $\bar{u}8V_{stby}$ and +12V <sub>stby</sub> during standby.
STEREO_L	Audio cinch output left
STEREO_R	Audio cinch output right
Y_ENC	Buffered Luma input from DVD monoboard
YCVBSIN_AUX	Luma or CVBS input from AUX-scart
YCVBSIN_TV	Luma or CVBS input from TV-scart
YCVBSOUT_AUX	Luma or CVBS output to AUX-scart
YCVBSOUT_TV	Luma or CVBS output to TV-scart
0/6/12	Scart switch control signal A/V board. 0V : loop through (AUX to TV), 6V : play 16:9 format, 12V : play 4:3 format

## 10. Spare Parts List

## Mechanical DVD712 /001 /021

## Various

0001	9305 023 61101	VAL6011/01
0010	3139 247 53371	CAB FRONT DVD712/00X
0012	3139 244 00351	BUTTON STANDBY DVD711 BLACK
0015	4822 459 10887	
0030	3139 247 53121	WINDOW DVD712/17X PPT
0035	3139 247 51080	RING DVD711 ML PNT PRT
0040	3139 247 50870	BTN CONTROL DVD711/ 17X PNT PRT
0045	3139 240 00030	DVD LOGO DVD711
0050	3139 247 50930	DOOR DVD711/17X PNT PRT
0060	3139 241 20110	DOOR SPRING
0200	3139 247 53361	FRONT ASSY DVD712/ 00X
0224	3139 247 53241	BACK PLATE DVD712/00X PPT
0232	3139 247 50340	COVER TOP
0244	3139 247 51261	FOOT ASSY DVD711 EU FOIL
0245	3139 247 51271	FOOT ASSY DVD711 EU
0265▲	4822 321 11196	MAINS CORD 20/21"
0333	3103 308 92610	CABLE AUDIO 2X2RCA MALE 1.5MTR
0382	3139 248 71001	CABLE SCART DVD-TV 1.1M
0384	3139 228 87051	PROD.ASSY RC19133001/ 01 PACKED
0387	3139 246 10781	IFU DVD712/00X
1014	3104 157 11190	CWAS FLEX DVD 22 130 32S
1015	3104 157 11200	CWAS FLEX DVD 16 130 32S

## AV PWB DVD712 /001 /021

## Various

1001	2422 025 16525	CON BM V 16P F 1.00 FFC 0.3 R
1002	2422 025 12352	CON BM EURO H 21P F BK GRND-L
1003	4822 267 10994	4P, MDIN
1005	4822 265 11566	3P YKC21-3930
1010	2422 025 16526	CON BM V 22P F 1.00 FFC 0.3 R
1011	4822 267 31729	
1012	4822 267 31729	



2101	4822 124 40184	1000µF 20% 10V
2103	4822 124 40207	100µF 20% 25V
2104	4822 124 40207	100µF 20% 25V
2105	4822 124 40207	100µF 20% 25V
2106	4822 126 14305	100nF 10% 16V 0603
2107	3198 017 44740	0603 10V 470nF COL
2108	4822 124 40207	100µF 20% 25V
2109	4822 124 40207	100µF 20% 25V
2110	4822 126 13883	220pF 5% 50V
2111	4822 126 14494	22nF 10% 25V 0603
2112	4822 122 31765	100pF 2% 63V
2113	4822 126 13883	220pF 5% 50V
2114	4822 124 40207	100µF 20% 25V
2115	4822 126 13883	220pF 5% 50V
2116	4822 126 13883	220pF 5% 50V
2117	4822 126 13883	220pF 5% 50V
2200	4822 126 14305	100nF 10% 16V 0603
2201	4822 124 80231	47µF 20% 16V
2202	4822 124 80231	47µF 20% 16V
2203	4822 126 14305	100nF 10% 16V 0603
2204	4822 124 23432	100µF 20% 10V
2205	4822 124 40207	100µF 20% 25V
2206	4822 124 80231	47µF 20% 16V
2207	4822 126 14305	100nF 10% 16V 0603
2208	4822 124 11947	10µF 20% 16V
2209	3198 017 44740	0603 10V 470nF COL
2210	4822 126 14305	100nF 10% 16V 0603
2211	4822 124 40207	100µF 20% 25V
2212	3198 016 31020	0603 25V 1nF

2213	4822 126 14305	100nF 10% 16V 0603
2214	4822 122 31765	100pF 2% 63V
2215	3198 016 31020	0603 25V 1nF
2216	4822 124 11947	10µF 20% 16V
2217	4822 126 14305	100nF 10% 16V 0603
2218	3198 017 42230	0603 50V 22nF COL
2219	3198 017 42230	0603 50V 22nF COL
2220	4822 124 40207	100µF 20% 25V
2221	4822 126 14305	100nF 10% 16V 0603
2222	3198 017 41050	0603 10V 1µF COL R
2223	3198 017 42230	0603 50V 22nF COL
2224	3198 017 42230	0603 50V 22nF COL
2225	4822 124 40207	100µF 20% 25V
2226	4822 124 40207	100µF 20% 25V
2227	4822 124 11947	10µF 20% 16V
2228	3198 016 31020	0603 25V 1nF
2229	4822 122 31765	100pF 2% 63V
2230	3198 016 31020	0603 25V 1nF
2231	4822 126 14305	100nF 10% 16V 0603
2232	4822 124 11947	10µF 20% 16V
2233	4822 122 33777	47pF 5% 63V
2234	4822 126 14305	100nF 10% 16V 0603
2235	4822 122 33777	47pF 5% 63V
2236	4822 124 40207	100µF 20% 25V
2237	4822 124 80195	470µF 20% 10V
2243	4822 126 13883	220pF 5% 50V
2244	4822 126 13883	220pF 5% 50V
2249	4822 122 33761	22pF 5% 50V



3100	4822 051 20478	4Ω 7.5% 0.1W
3111	4822 051 30271	270Ω 5% 0.062W
3113	4822 051 30101	100Ω 5% 0.062W
3114	4822 051 30101	100Ω 5% 0.062W
3115	4822 117 12968	820Ω 5% 0.62W
3116	4822 051 30682	6k8 5% 0.062W
3117	4822 051 30222	2k2 5% 0.062W
3118	4822 051 30681	680Ω 5% 0.062W
3119	4822 051 30472	4k7 5% 0.062W
3120	4822 051 30759	75Ω 5% 0.062W
3121	4822 051 30271	270Ω 5% 0.062W
3122	4822 051 30101	100Ω 5% 0.062W
3123	4822 051 30101	100Ω 5% 0.062W
3124	4822 051 30759	75Ω 5% 0.062W
3125	4822 051 30682	6k8 5% 0.062W
3126	4822 117 12968	820Ω 5% 0.62W
3127	4822 051 30222	2k2 5% 0.062W
3128	4822 051 30681	680Ω 5% 0.062W
3129	4822 051 30472	4k7 5% 0.062W
3130	4822 051 30221	220Ω 5% 0.062W
3131	4822 051 30271	270Ω 5% 0.062W
3132	4822 051 30101	100Ω 5% 0.062W
3133	4822 051 30101	100Ω 5% 0.062W
3134	4822 051 30759	75Ω 5% 0.062W
3135	4822 117 12968	820Ω 5% 0.62W
3136	4822 051 30682	6k8 5% 0.062W
3137	4822 051 30222	2k2 5% 0.062W
3138	4822 051 30472	4k7 5% 0.062W
3139	4822 051 30681	680Ω 5% 0.062W
3140	4822 051 30222	2k2 5% 0.062W
3141	4822 051 30223	22k 5% 0.062W
3142	4822 117 12902	8k2 1% 0.063W 0603
3143	4822 116 52257	22k 5% 0.5W
3144	4822 116 52244	15k 5% 0.5W
3145	4822 050 21003	10k 1% 0.6W
3146	4822 051 30759	75Ω 5% 0.062W
3147	4822 051 30223	22k 5% 0.062W
3148	4822 051 30102	1k 5% 0.062W
3149	4822 116 83884	47k 5% 0.5W
3150	4822 051 30271	270Ω 5% 0.062W
3151	4822 051 30101	100Ω 5% 0.062W
3152	4822 051 30101	100Ω 5% 0.062W
3153	4822 051 30682	6k8 5% 0.062W
3154	4822 117 12968	820Ω 5% 0.62W
3155	4822 051 30471	470Ω 5% 0.062W
3156	4822 051 30472	4k7 5% 0.062W
3157	4822 051 30681	680Ω 5% 0.062W
3158	4822 051 30759	75Ω 5% 0.062W
3159	4822 116 52175	100Ω 5% 0.5W
3160	4822 051 30271	270Ω 5% 0.062W
3161	4822 051 30101	100Ω 5% 0.062W
3162	4822 051 30101	100Ω 5% 0.062W
3163	4822 051 30759	75Ω 5% 0.062W
3164	4822 051 30682	6k8 5% 0.062W
3165	4822 117 12968	820Ω 5% 0.62W
3166	4822 051 30222	2k2 5% 0.062W
3167	4822 051 30472	4k7 5% 0.062W
3168	4822 051 30681	680Ω 5% 0.062W

3169	4822 051 30102	1k 5% 0.062W
3170	4822 051 30102	1k 5% 0.062W
3202	4822 051 30681	680Ω 5% 0.062W
3203	4822 116 52228	680Ω 5% 0.5W
3204	4822 116 52195	47Ω 5% 0.5W
3205	4822 117 12902	8k2 1% 0.063W 0603
3206	4822 051 30472	4k7 5% 0.062W
3207	4822 117 11152	4Ω 7.5%
3208	4822 051 30103	10k 5% 0.062W
3210	4822 051 30103	10k 5% 0.062W
3211	4822 051 30272	2k7 5% 0.062W
3212	4822 051 30103	10k 5% 0.062W
3213	4822 051 30272	2k7 5% 0.062W
3214	4822 051 30333	33k 5% 0.062W
3215	4822 051 30681	680Ω 5% 0.062W
3216	4822 051 30272	2k7 5% 0.062W
3217	4822 051 20008	0Ω jumper . (0805)
3219	4822 051 30333	33k 5% 0.062W
3220	4822 051 30681	680Ω 5% 0.062W
3221	4822 116 52263	2k7 5% 0.5W
3222	4822 051 20008	0Ω jumper . (0805)
3223	4822 116 52263	2k7 5% 0.5W
3225	4822 051 30681	680Ω 5% 0.062W
3226	4822 051 30103	10k 5% 0.062W
3227	4822 051 30272	2k7 5% 0.062W
3228	4822 116 52228	680Ω 5% 0.5W
3229	4822 116 52263	2k7 5% 0.5W
3230	4822 051 30103	10k 5% 0.062W
3231	4822 117 12902	8k2 1% 0.063W 0603
3232	4822 051 30472	4k7 5% 0.062W
3233	4822 051 30103	10k 5% 0.062W
3234	4822 116 52175	100Ω 5% 0.5W
3235	4822 116 52175	100Ω 5% 0.5W
3236	4822 051 30689	68Ω 5% 0.063W 0603 RC21 RST SM
3237	4822 117 11152	4Ω 7.5%
3238	4822 051 30472	4k7 5% 0.062W
3239	4822 117 13632	100k 1% 0.603 0.62W
3240	4822 051 30271	270Ω 5% 0.062W
3241	4822 051 30101	100Ω 5% 0.062W
3242	4822 051 30759	75Ω 5% 0.062W
3243	4822 117 12968	820Ω 5% 0.62W
3244	4822 051 30682	6k8 5% 0.062W
3245	4822 051 30222	2k2 5% 0.062W
3246	4822 051 30472	4k7 5% 0.062W
3247	4822 051 30681	680Ω 5% 0.062W
3248	4822 051 30759	75Ω 5% 0.062W
3249	4822 051 30222	2k2 5% 0.062W
3250	4822 051 30103	10k 5% 0.062W
4xxx	4822 051 10008	0Ω 5% 0.25W (1206)
4xxx	4822 051 20008	0Ω 5% 0.25W (0805)



5200	4822 157 70601	100µH (920927085A)
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6102	4822 130 11522	UDZ15B
6103	4822 130 11522	UDZ15B
6104	4822 130 11522	UDZ15B
6105	4822 130 11522	UDZ15B
6106	4822 130 11522	UDZ15B
6107	4822 130 11522	UDZ15B
6203	4822 130 11522	UDZ15B
6204	4822 130 11522	UDZ15B



7200	9352 640 74118	IC SM UDA1334TS/NI (PHSE) R
7201	4822 209 30095	LM833D
7202	4822 209 30095	LM833D
7203	4822 209 16978	LF33CV
7204	4822 130 10845	GP1F32T
7401	4822 130 60511	BC847B
7402	4822 130 60511	BC847B
7403	4822 130 60511	BC847B
7404	4822 130 60373	BC856B
7405	4822 130 60511	BC847B
7406	4822 130 60511	BC847B
7407	4822 130 60373	BC856B
7408	4822 130 60511	BC847B
7409	4822 130 60511	BC847B
7413	4822 130 60373	BC856B
7414	4822 130 60511	BC847B
7415	4822 130 60511	BC847B
7416	4822 130 60373	BC856B

7417	4822 130 60511	BC847B
7418	4822 130 60511	BC847B
7419	4822 130 60373	BC856B
7420	4822 130 60373	BC856B
7421	4822 130 60511	BC847B
7422	4822 130 60511	BC847B
7423	4822 130 60511	BC847B
7501	4822 130 42804	BC817-25
7502	4822 130 42804	BC817-25
7503	4822 130 60511	BC847B
7504	4822 130 42804	BC817-25
7505	4822 130 60511	BC847B
7506	4822 130 42804	BC817-25
7507	4822 130 42804	BC817-25
7508	4822 130 60511	BC847B
7509	4822 130 60373	BC856B
7510	4822 130 60511	BC847B
7511	4822 130 60511	BC847B
7512	4822 130 42804	BC817-25

### Front PWB DVD712 /001 /021

#### Various

0002	3139 244 01321	FTD HOLDER DVD712
1100	4822 276 13775	SWITCH
1101	4822 276 13775	SWITCH
1102	4822 276 13775	SWITCH
1106	4822 276 13775	SWITCH
1107	4822 276 13775	SWITCH
1108	4822 276 13775	SWITCH
1109	4822 276 13775	SWITCH
1110	2422 540 98423	RES CER 8MHz CSTS*MHz 03
1111	4822 276 13775	SWITCH
1113	3139 240 50061	FTD HNV-11SS28T DVD702
1115	4822 267 10565	4P
1117	4822 267 10565	4P
1118	4822 267 10637	B5B-PH-K (5P)
1205	4822 267 10567	4P

#### —II—

2100	4822 126 13883	220pF 5% 50V
2101	4822 126 13883	220pF 5% 50V
2105	4822 126 14549	33nF 16V O6O3
2106	4822 124 40207	100µF 20% 25V
2107	3198 024 44730	47nF 50V O6O3
2108	3198 024 44730	47nF 50V O6O3
2109	3198 024 44730	47nF 50V O6O3
2110	3198 024 44730	47nF 50V O6O3
2111	3198 024 44730	47nF 50V O6O3
2114	4822 122 33761	22pF 5% 50V
2115	4822 122 33761	22pF 5% 50V
2116	4822 126 14549	33nF 16V O6O3
2122	4822 126 14549	33nF 16V O6O3
2123	4822 124 40207	100µF 20% 25V
2124	3198 028 42290	EL 5MM 35V 22µF PM20 COL A
2125	4822 122 33761	22pF 5% 50V
2126	4822 124 11947	10µF 20% 16V
2128	5322 126 11578	1nF 10% 50V O6O3
2129	3198 028 42290	EL 5MM 35V 22µF PM20 COL A
2130	4822 124 41751	47µF 20% 50V
2201	4822 126 14549	33nF 16V O6O3

#### —□—

3100	4822 051 30223	22k 5% 0.062W
3101	4822 051 30273	27k 5% 0.062W
3102	4822 117 12925	47k 1% 0.063W O6O3
3103	4822 117 13608	4.7Ω 5% 0603 0.0016W
3104	4822 117 13632	100k 1% 0603 0.62W
3105	4822 117 13613	2Ω 2% 0603
3106	4822 051 30221	220Ω 5% 0.062W
3107	4822 117 13608	4.7Ω 5% 0603 0.0016W
3108	4822 117 13613	2Ω 2% 0603
3109	4822 051 30472	4k7 5% 0.062W
3110	4822 051 30472	4k7 5% 0.062W
3111	4822 051 30472	4k7 5% 0.062W
3112	4822 051 30472	4k7 5% 0.062W
3113	4822 051 30472	4k7 5% 0.062W
3114	4822 051 30472	4k7 5% 0.062W
3115	4822 051 30472	4k7 5% 0.062W
3118	4822 051 30103	10k 5% 0.062W
3119	4822 051 30103	10k 5% 0.062W
3120	4822 051 30471	470Ω 5% 0.062W
3121	4822 051 30472	4k7 5% 0.062W
3122	4822 051 30109	10Ω 5% 0.062W

3123	4822 051 30103	10k 5% 0.062W
3125	4822 051 30109	10Ω 5% 0.062W
3130	4822 051 30109	10Ω 5% 0.062W
3132	4822 051 30331	330Ω 5% 0.062W
3133	4822 051 30109	10Ω 5% 0.062W
3134	4822 051 30331	330Ω 5% 0.062W
3135	4822 051 30221	220Ω 5% 0.062W
3136	4822 051 30102	1k 5% 0.062W
3137	4822 051 30103	10k 5% 0.062W
3138	4822 051 30471	470Ω 5% 0.062W
3139	4822 051 30472	4k7 5% 0.062W
3140	4822 051 30103	10k 5% 0.062W
3142	4822 051 30331	330Ω 5% 0.062W
3143	4822 051 30103	10k 5% 0.062W
3144	4822 117 13632	100k 1% 0603 0.62W
3146	4822 051 30103	10k 5% 0.062W
3147	4822 051 30103	10k 5% 0.062W
3148	4822 051 30101	100Ω 5% 0.062W
3149	4822 051 30101	100Ω 5% 0.062W
3151	4822 051 30101	100Ω 5% 0.062W
3155	4822 051 30008	0Ω jumper
3156	4822 051 30008	0Ω jumper
3159	4822 051 30472	4k7 5% 0.062W

#### →+

6100	4822 130 11397	BAS316
6101	9965 000 04709	UDZ6.2BTE-17
6102	4822 130 10837	UDZS8.2B
6104	4822 130 11397	BAS316
6200	4822 130 82978	LTL-16KPE-P



7101	4822 130 60511	BC847B
7104	3104 123 94532	TMP87CH74F-1E29- V2.18-DVDSLAVE
7105	4822 130 40981	BC337-25
7106	4822 130 40854	BC327
7107	4822 130 60511	BC847B
7108	4822 130 60511	BC847B
7109	4822 130 60373	BC856B
7110	4822 130 10165	GP1U28XP
7112	4822 209 31257	MC79L24ACP

### PSU PWB DVD712 /001 /021

#### Various

0101▲	4822 265 20723	B2P3-VH
0120▲	4822 265 11253	FUSE HOLDER 2P
0205	2422 025 08333	CON BM V 12P M 2.50 EH B
0208	4822 267 10565	4P
1120▲	4822 253 30383	19181 (2.5A)

#### —II—

2120▲	4822 121 10711	100nF 20% 275V
2121	2222 151 90048	47µF 20% 400V
2127	4822 122 50116	470pF 10% 1KV
2130▲	4822 126 13841	1nF 20% 250V
2131▲	4822 126 13841	1nF 20% 250V
2134	4822 124 11566	47µF 20% 50V
2135	4822 124 22652	2.2µF 20% 50V
2141	4822 124 22652	2.2µF 20% 50V
2143	4822 126 14585	100nF 10% 50V
2145	5322 126 10223	4.7nF 10% 63V
2146	4822 126 14585	100nF 10% 50V
2150	4822 126 14585	100nF 10% 50V
2156	5322 122 31863	63V 330pF PM5
2157	5322 122 32268	63V 470P PM5
2202	4822 126 14585	100nF 10% 50V
2210	2020 012 93728	EL YK 10V S 2200µF PM20 B
2230	2020 012 93757	EL YK 10V S 1000µF PM20 B
2232	4822 124 81021	100µF 20% 16V
2235	4822 126 14549	33nF 16V O6O3
2238	4822 124 81021	100µF 20% 16V
2239	4822 124 81021	100µF 20% 16V
2240	4822 124 11767	470µF 20% 25V
2250	4822 124 41545	220µF 20% 16V
2259	4822 124 81021	100µF 20% 16V
2260	4822 124 81151	22µF 50V
2299	5322 122 32654	63V 22nF PM10 R

#### —□—

3111	4822 116 52176	10Ω 5% 0.5W
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3120▲	2322 595 90023	VDR DC 1M A/423V S MAX 800V B
3123	4822 116 52291	56k 5% 0.5W
3125	4822 051 20223	22k 5% 0.1W
3126	4822 116 81801	3Ω 6 5% 0.5W
3127	4822 116 80176	1Ω 5% 0.5W
3128	4822 116 80176	1Ω 5% 0.5W
3131	4822 051 10274	270k 2% 0.25W
3132▲	4822 052 11108	1Ω 5% 0.5W
3134	4822 116 52291	56k 5% 0.5W
3135	4822 116 52182	15Ω 5% 0.5W
3136	4822 051 10274	270k 2% 0.25W
3137	4822 117 10837	100k 1% 0.1W
3139	4822 051 20479	47Ω 5% 0.1W
3140	4822 116 52226	560Ω 5% 0.5W
3141	4822 117 11507	6k8 1% 0.1W
3143	3198 021 53630	36k 5% 0.1W 0805
3145	4822 117 10965	18k 1% 0.1W
3146	4822 117 11148	56k 1% 0.1W
3150	4822 117 11139	1k5 1% 0.1W
3153	4822 116 83933	15k 1% 0.1W
3154	4822 117 11139	1k5 1% 0.1W
3155	4822 116 52219	330Ω 5% 0.5W
3156	4822 051 20339	33Ω 5% 0.1W
3201	4822 116 52176	10Ω 5% 0.5W
3202	4822 117 11141	1k8 1% 0.1W
3204	4822 117 11504	270Ω 1% 0.1W
3205	4822 117 11145	4k7 1% 0.1W
3206	4822 051 20391	390Ω 5% 0.1W
3207	4822 051 10102	1k 2% 0.25W
3233	4822 052 10228	2Ω 2% 0.33W
3235	4822 116 83933	15k 1% 0.1W
3254	4822 051 30223	22k 5% 0.062W
3255	5322 117 13049	470Ω 1% 0.063W O6O3 RC22H
3256	4822 051 30681	680Ω 5% 0.062W
3257	5322 117 13053	6k8 1% 0.063W O6O3 RC22H
3258	4822 051 30103	10k 5% 0.062W
3259	4822 051 20102	1k 5% 0.1W
3260	4822 051 20101	100Ω 5% 0.1W
3262	4822 116 83872	220Ω 5% 0.5W
3263	4822 116 52249	1k8 5% 0.5W
4xxx	4822 051 10008	0Ω 5% 0.25W (1206)
4xxx	4822 051 20008	0Ω 5% 0.25W (0805)

5120▲	4822 157 11846	
5125	4822 157 11411	100mH z
5131▲	3128 138 39631	SM TRANSFORMER - CT282D4
5135	4822 157 70698	27µH
5210	2422 535 94638	IND FXD LHL08 S 6U8 PM20 A
5222▲	4822 156 20966	47 µH
5231	2422 535 94638	IND FXD LHL08 S 6U8 PM20 A
5240	4822 157 51195	1 µH 20% 4X9.8MM AXIAL
5260	4822 157 11517	10µH 5% 2.3X3.4

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6118	4822 130 31603	1N4006
6119	4822 130 31603	1N4006
6120	4822 130 31603	1N4006
6121	4822 130 31603	1N4006
6129	9340 548 67115	DIO REG SM PDZ22B (PHSE) R
6132	4822 130 30842	BAV21
6133	4822 130 30842	BAV21
6140	4822 130 30621	1N4148
6141	4822 130 11152	UDZ18B
6150	4822 130 11148	UDZ4.7B
6210	4822 130 11584	BYW98-200-C1
6230	4822 130 41602	BYW95C
6233	4822 130 34174	BZX79-B4V7
6241	4822 130 11584	BYW98-200-C1
6250	4822 130 42488	BYD33D
6261	4822 130 42606	BYD33J



7125	4822 130 11417	STP3NB60FP
7131▲	9322 149 04682	OPT CP TCET1102(G) (VISH) L
7141	4822 130 44568	BC557B
7145	9322 145 88682	UC3842A
7150	4822 130 44257	BC547
7201	4822 209 81397	TL431CLPST
7235	4822 130 42705	BC847
7238	5322 130 11197	IRLML2803

7255 4822 130 40855 BC337  
 7256 5322 130 42756 BC857C  
 7257 5322 130 42756 BC857C

**Mechanical DVD712 /051****Various**

0001 9305 023 61101 VAL6011/01  
 0010 3139 247 53371 CAB FRONT DVD712/00X  
 0012 3139 244 00351 BUTTON STANDBY  
 DVD711 BLACK  
 0015 4822 459 10887  
 0030 3139 247 53121 WINDOW DVD712/17X  
 PPT  
 0035 3139 247 51080 RING DVD711 ML PNT  
 PRT  
 0040 3139 247 50870 BTN CONTROL DVD711/  
 17X PNT PRT  
 0045 3139 240 00030 DVD LOGO DVD711  
 0050 3139 247 50930 DOOR DVD711/17X PNT  
 PRT  
 0060 3139 241 20110 DOOR SPRING  
 0200 3139 247 53361 FRONT ASSY DVD712/  
 00X  
 0224 3139 247 53241 BACK PLATE DVD712/00X  
 PPT  
 0232 3139 247 50340 COVER TOP  
 0244 3139 247 51261 FOOT ASSY DVD711 EU  
 FOIL  
 0245 3139 247 51271 FOOT ASSY DVD711 EU  
 0265▲ 3139 128 75222 MAINSCORD (2.3M) UK  
 BK (VHR)  
 0333 3103 308 92610 CABLE AUDIO 2X2RCA  
 MALE 1.5MTR  
 0336 4822 321 61579 VIDEO-CABLE  
 0382 3139 248 71001 CABLE SCART DVD-TV  
 1.1M  
 0384 3139 228 87051 PROD.ASSY RC19133001/  
 01 PACKED  
 0387 3139 246 10811 IFU DVD712/05X  
 101 3104 157 11190 CWAS FLEX DVD 22 130  
 32S  
 1015 3104 157 11200 CWAS FLEX DVD 16 130  
 32S

**Mechanical DVD722 /001 /021****Various**

0001 9305 023 61101 VAL6011/01  
 0010 3139 247 53071 CAB FRONT DVD722/00X  
 PPT  
 0015 4822 459 10887  
 0025 3139 247 50850 BTN STANDBY DVD751/  
 00X PNT PRT  
 0030 3139 247 53111 WINDOW DVD702/17X  
 PPT  
 0035 3139 247 50950 RING DVD751/00X PNT  
 PRT  
 0040 3139 247 50880 BTN CONTROL DVD751/  
 00X PNT PRT  
 0045 3139 240 00030 DVD LOGO DVD711  
 0050 3139 247 50940 DOOR DVD751/00X PNT  
 PRT  
 0060 3139 241 20110 DOOR SPRING  
 0200 3139 247 53281 FRONT ASSY DVD722/  
 00X  
 0224 3139 247 53241 BACK PLATE DVD712/00X  
 PPT  
 0232 3139 247 51170 COVER TOP DVD751/  
 00X PNT PRT  
 0244 3139 247 51261 FOOT ASSY DVD711 EU  
 FOIL  
 0245 3139 247 51271 FOOT ASSY DVD711 EU  
 0265▲ 4822 321 11196 MAINS CORD 20/21"  
 0333 3103 308 92610 CABLE AUDIO 2X2RCA  
 MALE 1.5MTR  
 0382 3139 248 71001 CABLE SCART DVD-TV  
 1.1M  
 0384 3139 228 87051 PROD.ASSY RC19133001/  
 01 PACKED  
 0387 3139 246 10781 IFU DVD712/00X  
 1014 3104 157 11190 CWAS FLEX DVD 22 130  
 32S  
 1015 3104 157 11200 CWAS FLEX DVD 16 130  
 32S

**Mechanical DVD722 /051****Various**

0001 9305 023 61101 VAL6011/01  
 0010 3139 247 53071 CAB FRONT DVD722/00X  
 PPT  
 0015 4822 459 10887  
 0025 3139 247 50850 BTN STANDBY DVD751/  
 00X PNT PRT  
 0030 3139 247 53111 WINDOW DVD702/17X  
 PPT  
 0035 3139 247 50950 RING DVD751/00X PNT  
 PRT  
 0040 3139 247 50880 BTN CONTROL DVD751/  
 00X PNT PRT  
 0045 3139 240 00030 DVD LOGO DVD711  
 0050 3139 247 50940 DOOR DVD751/00X PNT  
 PRT  
 0060 3139 241 20110 DOOR SPRING  
 0200 3139 247 53281 FRONT ASSY DVD722/  
 00X  
 0224 3139 247 53241 BACK PLATE DVD712/00X  
 PPT  
 0232 3139 247 51170 COVER TOP DVD751/  
 00X PNT PRT  
 0244 3139 247 51261 FOOT ASSY DVD711 EU  
 FOIL  
 0245 3139 247 51271 FOOT ASSY DVD711 EU  
 0265▲ 3139 128 75222 MAINSCORD (2.3M) UK  
 BK (VHR)  
 0333 3103 308 92610 CABLE AUDIO 2X2RCA  
 MALE 1.5MTR  
 0336 4822 321 61579 VIDEO-CABLE  
 0382 3139 248 71001 CABLE SCART DVD-TV  
 1.1M  
 0384 3139 228 87051 PROD.ASSY RC19133001/  
 01 PACKED  
 0387 3139 246 10811 IFU DVD712/05X  
 1014 3104 157 11190 CWAS FLEX DVD 22 130  
 32S  
 1015 3104 157 11200 CWAS FLEX DVD 16 130  
 32S